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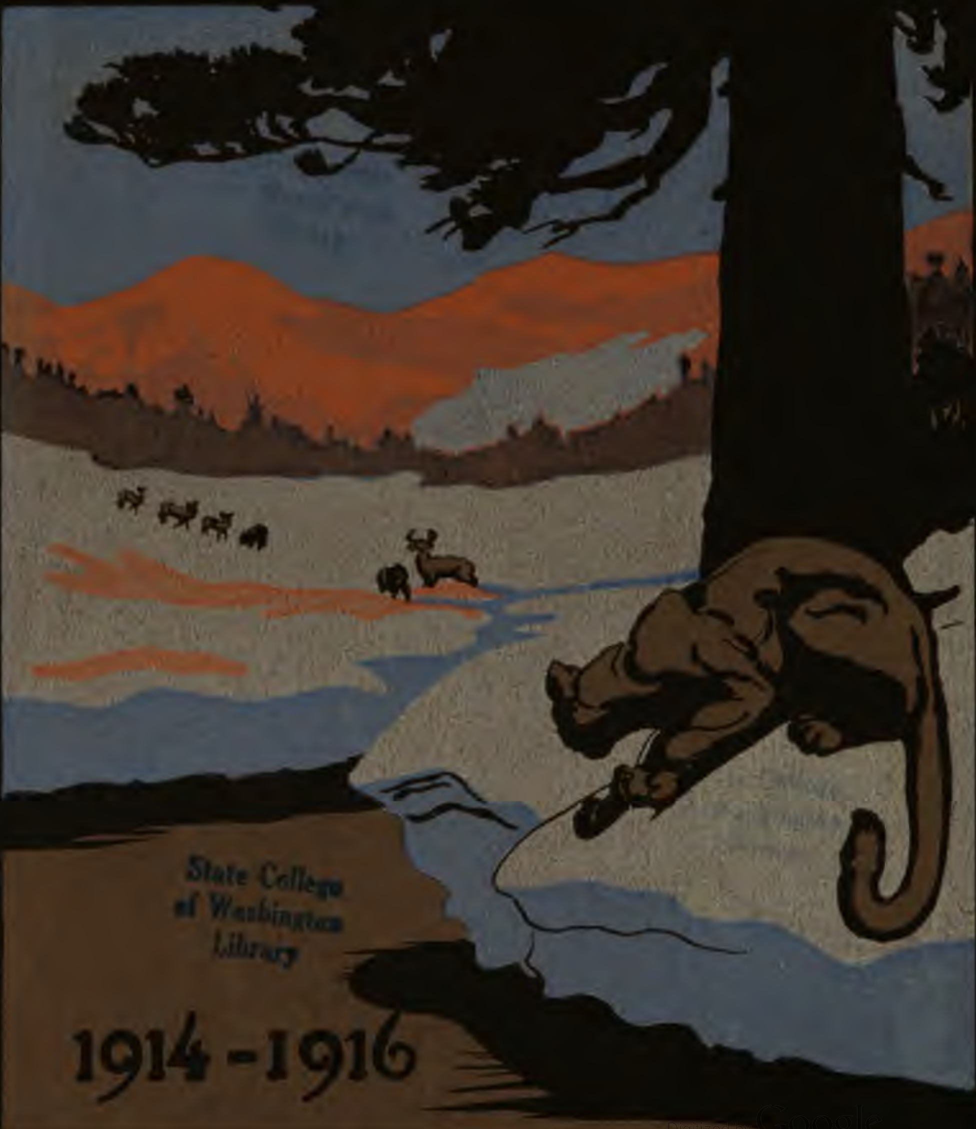
STATE OF CALIFORNIA
FISH & GAME COMMISSION
24th BIENNIAL REPORT



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STATE OF CALIFORNIA

FISH AND GAME COMMISSION

TWENTY-FOURTH BIENNIAL REPORT

For the Years 1914-1916

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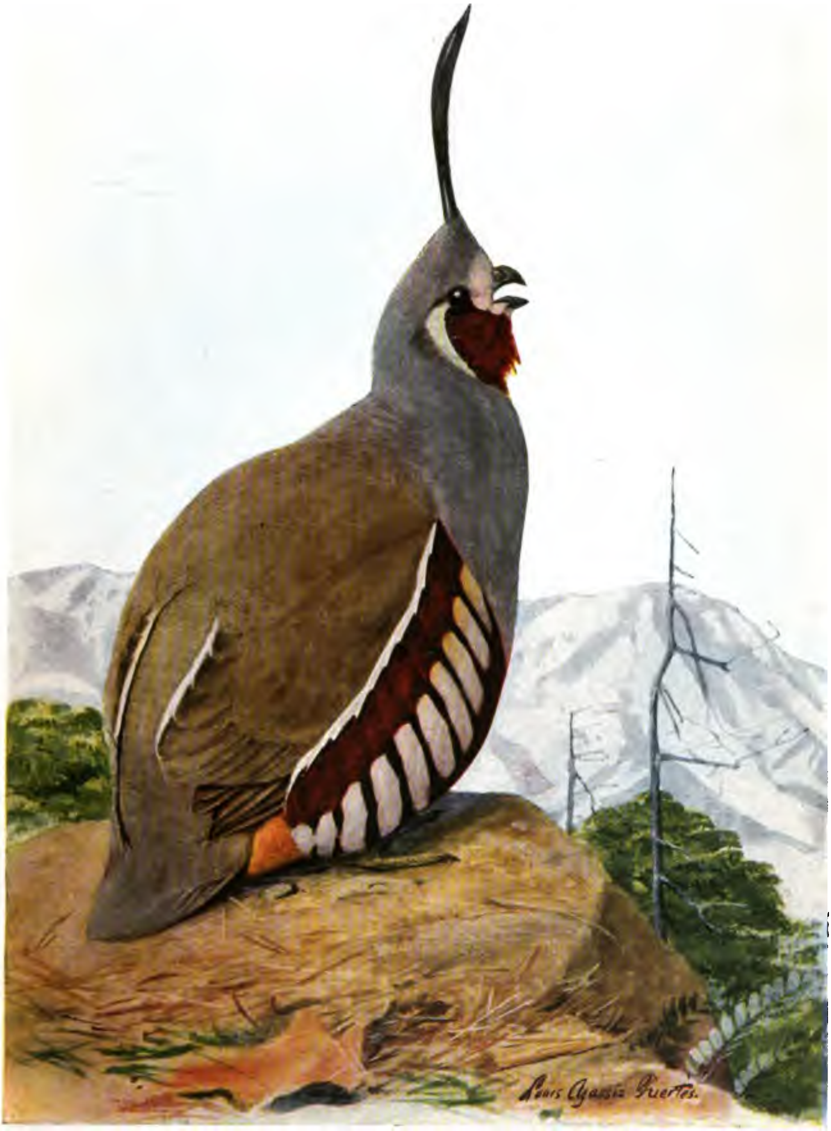

Louis Agassiz Fuertes.

—*From painting by Louis Agassiz Fuertes*

MOUNTAIN QUAIL ***(Oreortyx picta)***

LETTER OF TRANSMITTAL.

San Francisco, California,
June 30, 1916.

To His Excellency Hiram W. Johnson,
Governor of the State of California.

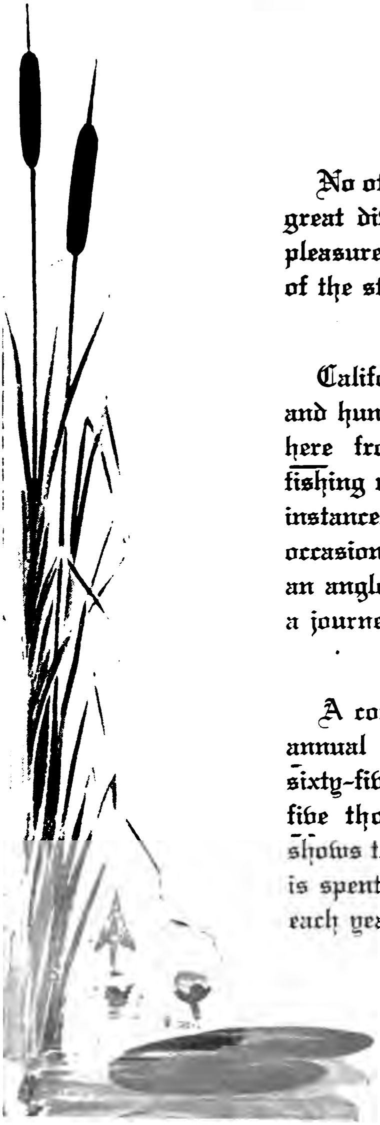
Sir: In accordance with law, we submit for your consideration the twenty-fourth biennial report of the Fish and Game Commission, the same being a record of the work, receipts and expenditures for the biennial period July 1, 1914, to June 30, 1916. A summary of the work accomplished occupies the first pages, followed by the detailed reports of the department heads and district offices. The appendix contains the statistical reports. Heretofore the biennial report has been the only printed record of the commission. Current activities now are recorded in the quarterly, California Fish and Game, published under our auspices. Further detailed accounts of the work of this board can be obtained, therefore, by referring to volumes 1 and 2 of this periodical.

Respectfully submitted.

F. M. Newbert
Carl Westerfeld
M. J. Connell

Board of Fish and Game Commissioners.

By Ernest Schaeffle,
Executive Officer.



No other natural resource brings such great dividends in money, food, health, pleasure and happiness as does the asset of the state's fish and game resources.

◆

California is a sportsman's paradise and hunters and fishermen are attracted here from all over the world. The fishing near Santa Catalina Island, for instance, has been on several different occasions of sufficient interest to bring an angler from South Africa, entailing a journey of thirteen thousand miles.

◆

A computation based on the average annual expenditure of the one hundred sixty-five thousand hunters and eighty-five thousand anglers in California shows that at least twenty million dollars is spent in the pursuit of fish and game each year.

1914 TWENTY-FOURTH 1916 BIENNIAL REPORT

INTRODUCTION.

The past biennial period has been one of marked advance in the protection and preservation of wild life, the propagation of fish, the stocking of streams, the construction of fish ladders and screens, and above all in the accumulation of important data on fish and game and in the development of a public sentiment favoring wild life conservation. All of the duties of the commission as prescribed by law and above outlined have been performed as fully and faithfully as the financial and other resources have allowed.

The accomplishments here reported have been made possible through funds obtained by the sale of hunting licenses, commercial fishermen's licenses and anglers' licenses, and from fines received from violators. No appropriations have been made by the legislature. Although the larger burden of support rightly falls on the men who hunt and fish, yet, either no revenue, or revenue not in proportion to the benefit received, is derived from others having an interest in game resources. For instance, the fisherman who secures but a few fish each day which he sends to market, pays a larger license fee than the salmon cannery, which profits enormously by the fact that the fish supply is maintained. The market hunter who commercializes game pays the same license as the man who hunts but once a year. The trapper of fur-bearing mammals pays nothing towards the support of investigations needed to assure the conservation of the resources from which he draws profit. Could the license fees be made proportionate to the benefits secured, funds would be available for the further development of the game and fishery resources by the commission.

Many eastern fish and game commissions have the cooperation of numerous sportsmen's organizations, who hire attorneys and otherwise help in conserving game. There are few active organizations of this kind in California and the enforcement of the fish and game laws and efforts to conserve fish and game rest almost wholly with the commission. The problem is made still more complicated because of the lack of cooperation shown by the peace officers of the state and because

THE MEN WHO ADMINISTER CALIFORNIA'S WILD LIFE RESOURCES.

F. M. NEWBERT,
President

M. J. CONNELL
Commissioner

CARL WESTERFELD,
Commissioner

ERNEST SCHAEFFLE,
Executive Officer

THE MEN WHO ADMINISTER CALIFORNIA'S WILD LIFE RESOURCES.

J. S. HUNTER
Assistant Executive Officer

W. H. SHEBLEY
In Charge Dept. Fish Culture

E. W. HUNT
Field Agent, Dept. Fish Culture

R. D. DUKE
Attorney

H. I. PRITCHARD, Assistant
In Charge Los Angeles Dist. Office

A. D. FERGUSON, Assistant
In Charge Fresno Dist. Office

N. B. SCOFIELD, In Charge
Dept. Commercial Fisheries

GEO. NEALE, Assistant
In Charge Sacramento Dist. Office

W. N. DIRKS
Superintendent State Game Farm

H. C. BRYANT, In Charge
Bur. Education, Publicity and Research

of the extraordinary size of California, which necessitates each warden patrolling an area in some instances as great as the state of Vermont. (See Fig. 6.)

Nevertheless, the fish and game laws are being enforced as never before. Not only are practically all offenders arrested, but convictions are had in almost every instance. We believe that the consistent enforcement of the game laws is a valuable educational force. Nothing deters the criminal so effectually as knowledge that all crimes will be punished with certainty. The favorable attitude shown by the people of this state at the present time is in part due to the systematic and relentless enforcement of fish and game laws.

In spite of a very severe winter in 1916, game conditions appear to be favorable. Several species of big game, such as antelope and mountain sheep, are little more than holding their own, but every effort is being made to save the remnant. Waterfowl and upland game birds are still to be found in abundance. That more and more men appear to be taking the field each year indicates that California's supply of fish and game is still large enough to encourage, rather than discourage, the hunter and angler. Increased interest in hunting and fishing is clearly evidenced by the augmented sale of licenses up to the end of the fiscal year 1914–15. Fewer hunting licenses were sold in 1915–16, but there are indications that there will be an increase this coming year. On the other hand, there was a marked increase in the number of anglers' licenses sold in 1915 (for detailed figures see p. 242).

Enforcement of Fish and Game Laws.

More arrests have been made and more convictions obtained in this than in any previous biennial period. The fish cases numbered 882 and the game cases 1205, making a total of 2087. Over 83 per cent of the total cases resulted in convictions, a higher percentage than is obtained in any other class of cases of like degree. The fines collected amounted to $33,415, and in addition 3103½ days of imprisonment were exacted from violators. Failure to secure a license led to the arrest of 424 hunters, 141 anglers and 140 commercial fishermen. Violations of the deer laws resulted in the arrest of 227 and violations of the trout laws 100. The fact that there were 115 convictions in nongame bird cases well shows the strong sentiment in favor of protecting songbirds (see p. 239). The increased number of arrests in the past few years indicates a more rigid enforcement of the game laws rather than an increase in violations.

Deputies of the commission have made 512 searches of markets, restaurants, private individuals, conveyances, etc., for illegal fish and game.

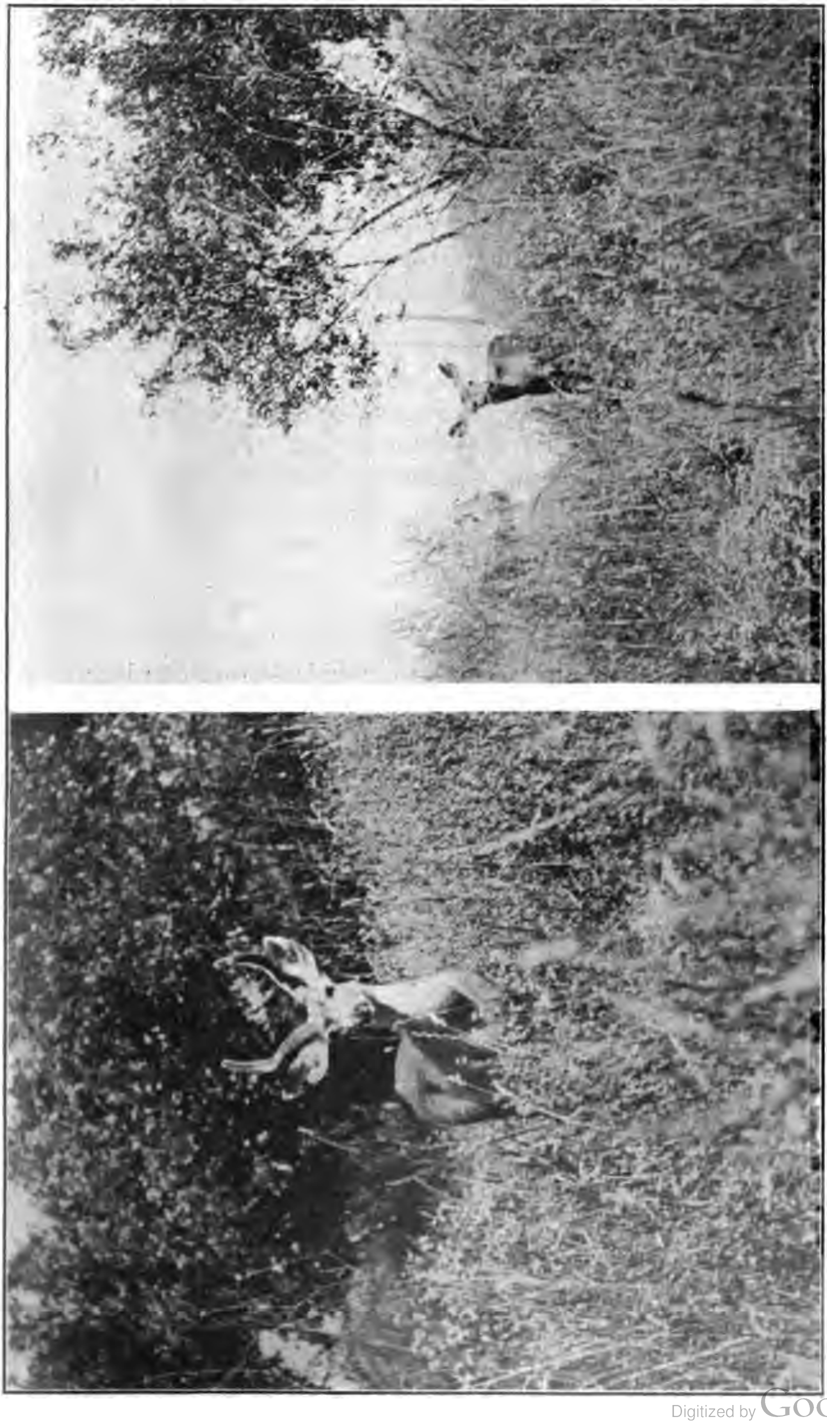


Fig. 1. Snapshots of black-tailed deer in Santa Cruz County. Photographs taken by W. E. Peckham on his ranch near Watsonville, California.

The seizures of illegal fish and game have been many. The more conspicuous totals are: ducks, 6695; geese, 1265; quail, 432; shore birds, 120; rabbits, 462; deer meat, 3802 pounds; trout, 5293 pounds; striped bass, 3900 pounds; salmon, 4195 pounds. All wholesome fish and game confiscated is donated to public and charitable institutions, from whom many grateful letters of acknowledgment have been received. Illegally used fishing apparatus, including nets, lines, etc., to the number of 337, have been confiscated. These represent about 12,668 fathoms, or 76,008 feet. This apparatus, after condemnation in superior courts, is destroyed or sold in accordance with law.

The Protection of Fish and Game.

Since the development of public sentiment is necessary to the proper conservation of wild life, emphasis has been placed on educational and publicity work. The Bureau of Education, Publicity and Research has been active in placing before the people of the state, by means of lectures, a quarterly bulletin, and newspaper items, the work of the commission and the needs of fish and game. The motto of this department is "Conservation Through Education." The quarterly, CALIFORNIA FISH AND GAME, has furnished a medium for the publication of statistical and financial reports and of facts regarding fish and game resources. This policy of keeping the people of the state informed of the status of, and the activities of the commission in conserving fish and game, has been instrumental in winning needed support for conservation measures and in increasing interest in the bird and animal life of the state. In preparation for further work of this kind and of future legislation a great deal of data has been accumulated. For example, the kill of deer has been annually compiled in order that there might be a basis for regulating the annual kill to the supply. Material in the form of teachers' bulletins has been issued and the attempt made to stimulate the teaching of nature study in the public schools. The proper education of children is a fundamental conservation measure. Such research problems as the food of the roadrunner, the food of ducks, and the status of introduced game birds have been undertaken and other economic and scientific investigations are contemplated.

The prosecution of such publicity as is being furnished by the Bureau, backed as it is by scientific research, will necessarily bring about a new era as regards wild life conservation. Knowledge of wild life and its needs assures good laws and the efficient patrol force helps to assure consistent obedience of them.

The newspapers of the state, especially those of southern California, have shown great interest in fish and game matters, and the publicity given by them has greatly aided the commission in successfully carrying forward its work.

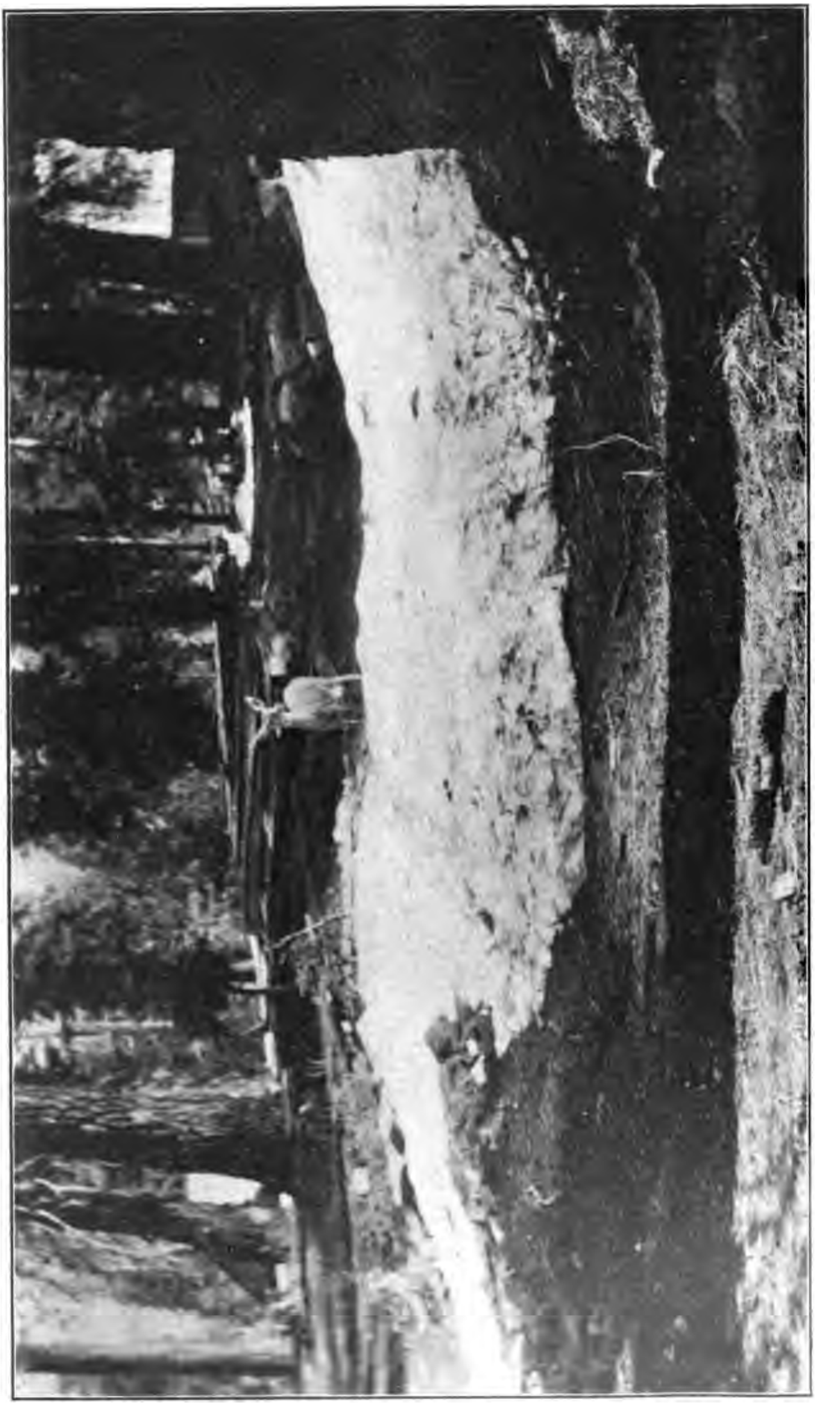


Fig. 2. A doe in the Sequoia National Forest. Photograph by L. D. Farmer, May 28, 1916.

At the Panama-Pacific International Exposition, the Fish and Game Commission, in cooperation with the California Academy of Sciences, installed an extensive exhibit depicting the wild life resources of California. Several habitat groups of game mammals were conspicuously placed in appropriate surroundings. To the south was a fine group of desert mountain sheep, to the west a group of black-tailed deer and to the north a typical hunter's camp among redwoods. In the camp were hung some of the different species of game birds, and tree squirrels and mountain blue jays were to be seen perched in the trees overhead. Between the major groups and placed in rocky caves were a black bear watching her cubs at play, and a mountain lion guarding her kittens while they fought over a dead fawn. An aquarium contained live golden trout from the Whitney region and representatives of other trout found in the state. Attractive colored booklets, giving facts in regard to fish and game and a statement of the reasons for saving the wild life resources of the state, were distributed by the assistant in charge of the information booth. Exhibits were also installed at the State Fair, the Chico Fair and at other county fairs.

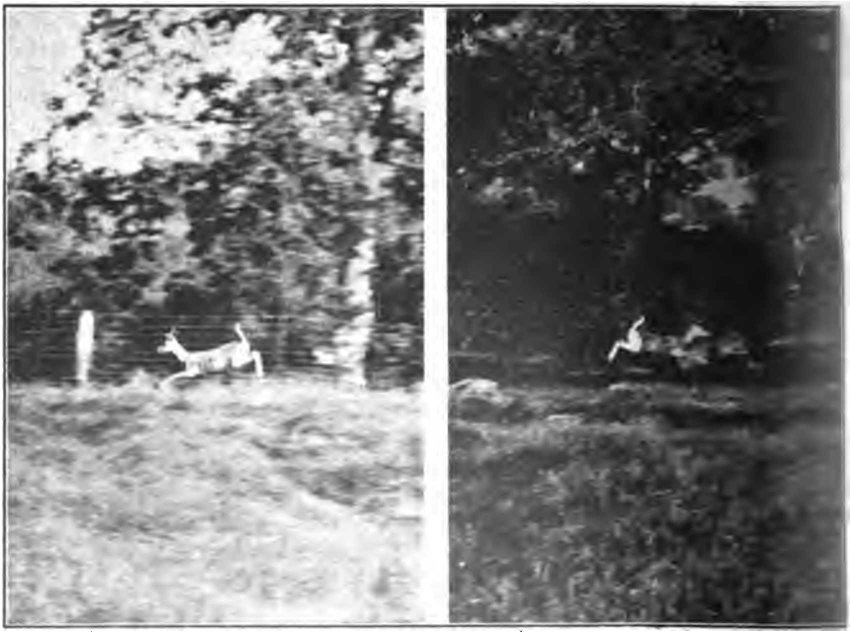


Fig. 3. Studies in deer locomotion. Photographs by E. W. Smalley.

Under the direction of Charles R. Gilmore, engineer-draftsman, the work of recording on maps accurate data on lakes and streams, which was instituted in 1912, has been continued. Eventually these maps will show the location of lakes and streams, the volume of water in

each, the fish plants made with data on the kind of fish, by whom planted, when planted and the expense attached thereto, and the ownership of the land bordering the principal fishing streams. The data will be of particular value in connection with future fish planting operations.

Proper fish and game protection and legislation must be based on accurate information on the abundance, distribution, food, habits and life history of each fish, bird and mammal concerned. This information is obtainable only through scientific investigations and the systematic collection of data. Two departments of the commission, the Bureau of Education, Publicity and Research and the Department of Commercial Fisheries, are actively engaged in making available the data necessary to the proper and efficient conservation of fish and game resources. Furthermore, the records of the status of fish and game and of the activities of the commission are being kept in such a way that endeavors in the future may profit by them and laws and conservation measures be planned accordingly.

Game Refuges.

In order to provide safe breeding grounds for game birds and mammals a number of game refuges have been established by legislative enactment. Prior to 1915 there had been created but two large state refuges. These were the Pinnacles National Forest Monument, situated in the counties of San Benito and Monterey, and a portion of the Cleveland National Forest, in Orange and Riverside counties. To these were added in 1915, an area in California Redwood Park, in Santa Cruz County, commonly known as the Big Basin, a portion of the Trinity National Forest, in Trinity County, and a large part of the Angeles National Forest, in Los Angeles and San Bernardino counties. the Trinity refuge comprising 64,000 acres and the Angeles 600,740 acres (see Fig. 6).

In addition to these state refuges there are a number of national reserves, such as the Klamath Lake Bird Reservation, in Siskiyou County, the Clear Lake Bird Reservation, in Modoc County, and the Farallone Bird Reservation, on the Farallone Islands. The national parks should be counted as refuges along with these reservations, for in them no hunting is allowed.

The combined state game refuges now occupy an area almost equal to the state of Rhode Island. There are 782,998 acres of national forest lands set aside as game refuges, where all hunting is prohibited, except that for predatory animals, under permit.

Still other additions to the game refuges of the state have been made under the law providing "that any person, firm or corporation, owning and in possession of patented land in the state of California embracing

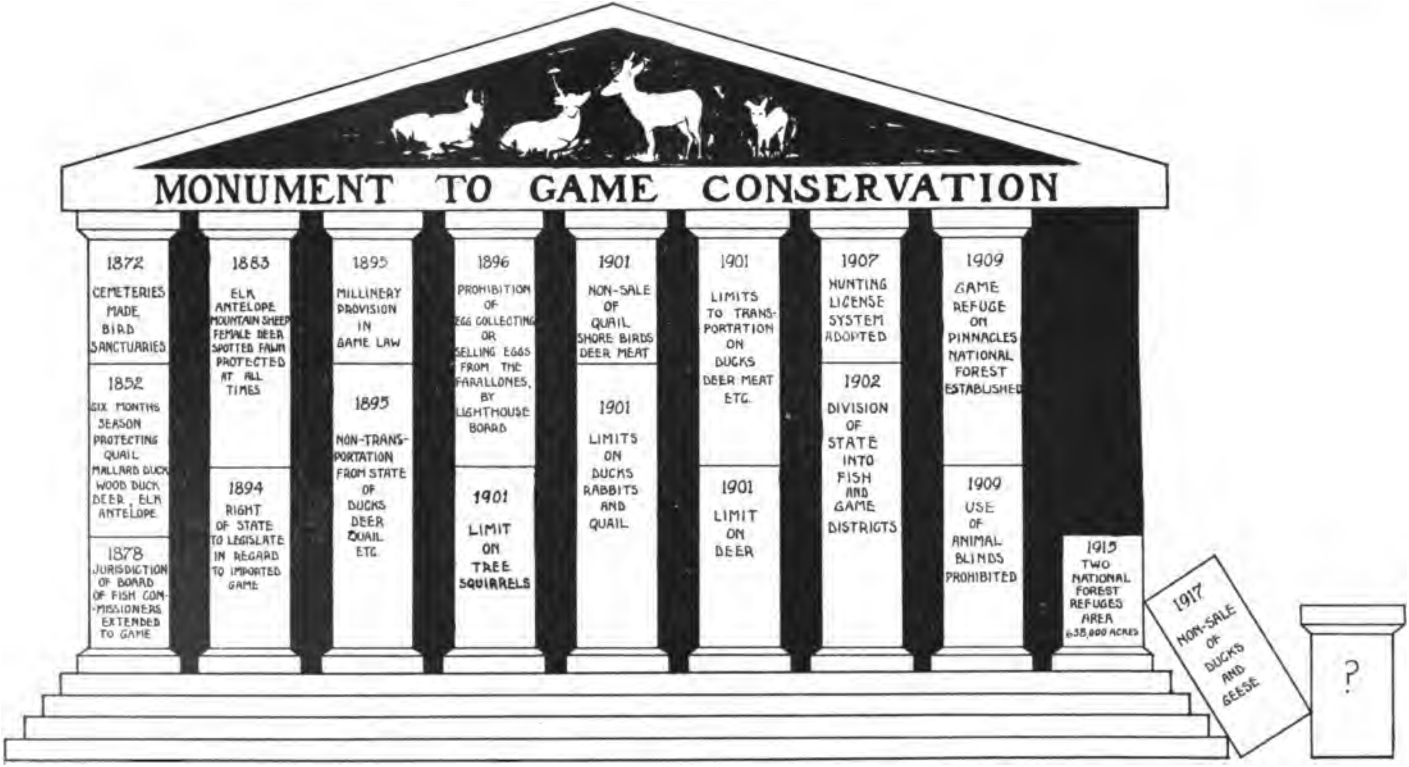

MONUMENT TO GAME CONSERVATION
1872 CEMETERIES MADE BIRD SANCTUARIES
1852 SIX MONTHS SEASON PROTECTING QUAIL MALLARD DUCK WOOD DUCK DEER, ELK ANTELOPE
1878 JURISDICTION OF BOARD OF FISH COM-MISSIONERS EXTENDED TO GAME
1883 ELK ANTELOPE MOUNTAIN SHEEP FEMALE DEER SPOTTED FAWN PROTECTED AT ALL TIMES
1894 RIGHT OF STATE TO LEGISLATE IN REGARD TO IMPORTED GAME
1895 MILLINERY PROVISION IN GAME LAW
1895 NON-TRANS-PORTATION FROM STATE OF DUCKS DEER QUAIL ETC.
1896 PROHIBITION OF EGG COLLECTING OR SELLING EGGS FROM THE FARALLONES, BY LIGHTHOUSE BOARD
1901 LIMIT ON TREE SQUIRRELS
1901 NON-SALE OF QUAIL SHORE BIRDS DEER MEAT
1901 LIMITS ON DUCKS RABBITS AND QUAIL
1901 LIMITS TO TRANS-PORTATION ON DUCKS DEER MEAT ETC.
1901 LIMIT ON DEER
1907 HUNTING LICENSE SYSTEM ADOPTED
1902 DIVISION OF STATE INTO FISH AND GAME DISTRICTS
1909 GAME REFUGE ON PINNACLES NATIONAL FOREST ESTABLISHED
1909 USE OF ANIMAL BLINDS PROHIBITED
1915 TWO NATIONAL FOREST REFUGES AREA 638,000 ACRES
1917 NON-SALE OF DUCKS AND GEESE
?

Fig. 5. A monument to game conservation in California. Much has been accomplished, but there is still much to be done.

absolute prohibition of sale will successfully stop the operations of the man who hunts for market. Furthermore, the fact that 300,000 ducks were sold in the markets of San Francisco alone in 1912 is evidence that the sale of ducks must be stopped if an undiminished supply is to be maintained. The result of the referendum vote on the nonsale-of-game bill was an indication of a lack of knowledge of the facts rather than a condemnation of the law. A valid principle underlies this needed law and in justice to neighboring states, all of which have such a law, California should see that market hunting is eliminated.

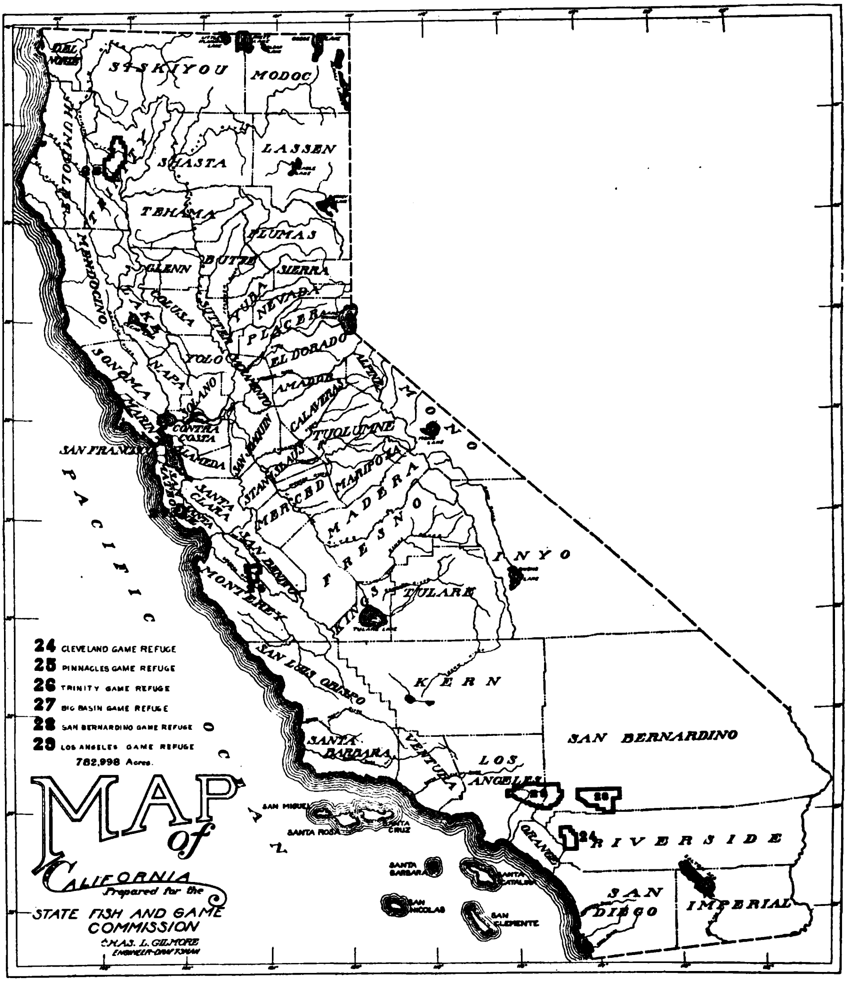


Fig. 7. Map of California, showing state game refuges.

Other laws enacted in 1915 are proving their worth. The state laws were made to conform with the Federal Migratory Bird Law, thus shortening several seasons and giving needed protection to geese. Bag limits on waterfowl and upland game birds were also materially reduced, thus going a step farther than the federal law. The additional protection given salmon by the prohibition of netting in the Sacramento River above Vina and the making of a closed season from May 15th to the close of the year for the district between Vina and Colusa, has resulted in a notable increase in the fish ascending the McCloud River. The legislation regulating the operations of commercial fishermen is assuring the conservation of the fishery resources. The law giving protection to the spiked buck has been widely observed and unanimously indorsed. The uniform season for rabbits and quail has been instrumental in keeping the gunner out of the fields until the young quail have matured. Although the rabbit may sometimes be a pest, yet if we profit by the experience of Pennsylvania this game mammal of the common hunter must be carefully protected. Pennsylvania is now attempting to restock the state with rabbits. The dove season is now much more satisfactory and band-tailed pigeons have received needed protection. The elimination of "bull hunting" has proved to be a wise conservation measure. The future will still more clearly demonstrate the value of the new and amended fish and game laws of the 1915 legislature.

The District Offices.

On account of the vast area of our state and in order that the work of the commission in the various parts might be expedited, there have been created three administrative divisions, the San Francisco, Sacramento and Los Angeles. The head office is located in San Francisco. Here are also the offices of the departments of Fish Culture, Commercial Fisheries, Licenses and Bookkeeping.

Assistants working in the San Francisco Division patrol an area covering 46,000 square miles with a population of nearly 1,500,000. The Sacramento office attends to the work of the commission in the Sacramento Valley and the northeastern part of the state, covering an area of 43,347 square miles with a population of nearly 500,000. The Los Angeles office is in charge of the southern part of the state which has an area of 56,435 square miles and a population of nearly 1,000,000. For several years, the commission maintained an office in the San Joaquin Valley at Fresno. It was deemed expedient to combine this office with the San Francisco office early in the year 1916. Mr. A. D. Ferguson, who had been in charge since the division was created, was made Field Agent with duties extending into all parts of the state.

Conspicuous among the activities of the Sacramento Division have been the winter feeding of game and the seining of fish from overflowed lands.

During the severe winter 1915–16 it soon became apparent that large numbers of deer and quail would starve unless feed was provided for them. Deputies were ordered to procure feed and to stimulate the interest of others in the work. As a result. many hundreds of deer and quail were supplied with food until the melting of the snows again furnished them a natural supply (see Figs. 8, 9, 10 and 11).

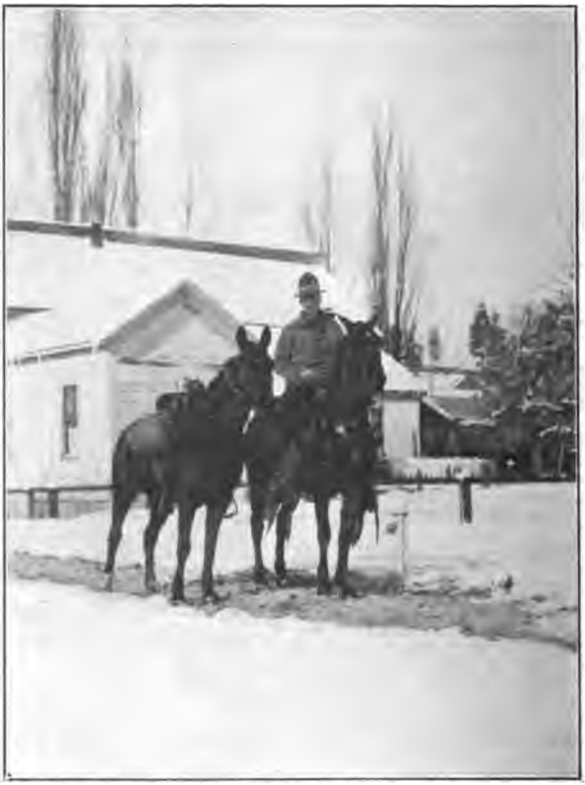


Fig. 8. Deputy O'Connor of Grass Valley, Nevada County, leaving on horseback to feed quail during severe weather, winter 1915–1916.

The drying up of overflowed bottoms in the Sacramento Valley annually causes a great loss in fish life. No more practicable method of conserving the valuable fishery resources of the great valleys has been found than is demonstrated in the efforts to seine out and plant in other places the fish which would otherwise die with the drying up of these overflowed areas (see Figs. 12 and 13). The Sacramento District office has carefully watched the areas where this danger exists and has been instrumental in saving thousands of black bass, perch, catfish, crappie and sunfish.

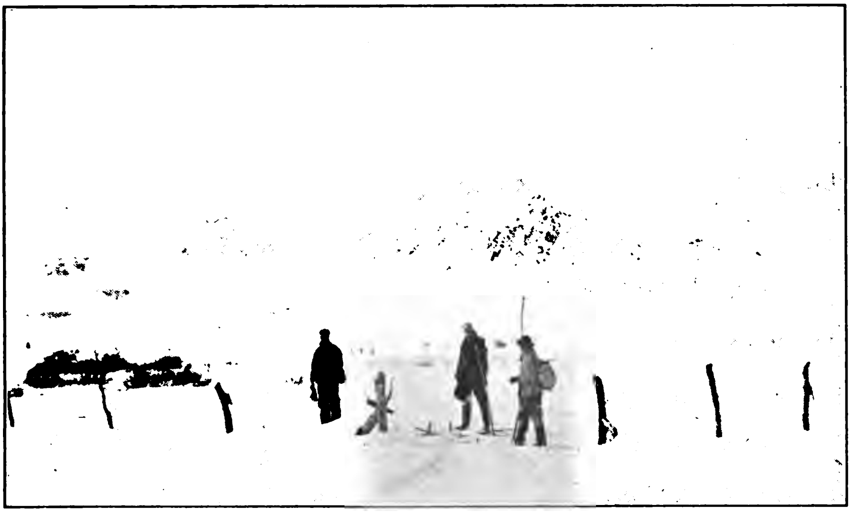


Fig. 9. Deputy E. H. Ober of Big Pine, Inyo County, and assistants feeding quail during severe weather, winter 1915–1916.

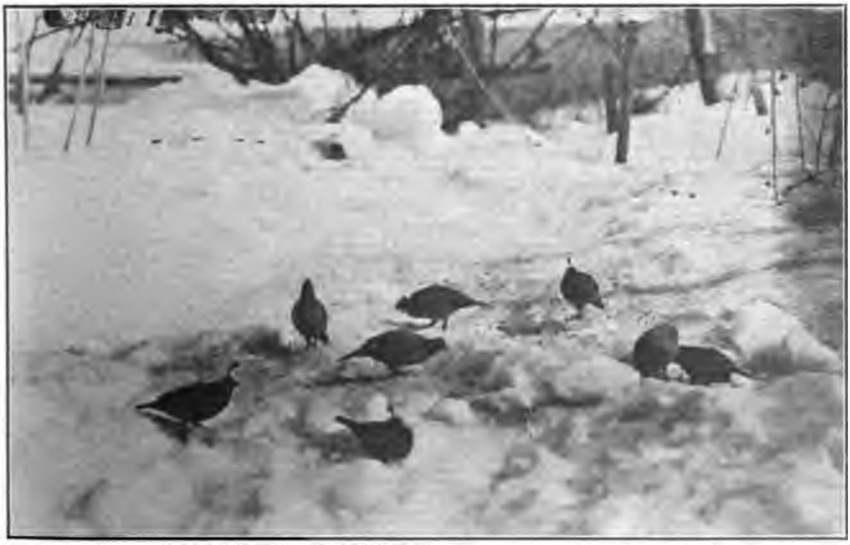


Fig. 10. Valley quail being fed at Bishop, Inyo County, during severe weather, winter 1915-1916. Thousands of quail were saved because fed by Fish and Game Commission deputies.

In addition to routine work the Los Angeles District office has carried on a noteworthy publicity campaign. The activities of the Southern Division office and the fish and game resources of the south have been given wide publicity. In addition study has been made of the commercial fisheries, which are yearly growing more important (see pages 80–100). The maintenance of a breeding stock of quail in Inyo County is due largely to the efforts of this division in feeding the birds during the severe winter weather of 1916. Many deer were also saved from starvation.

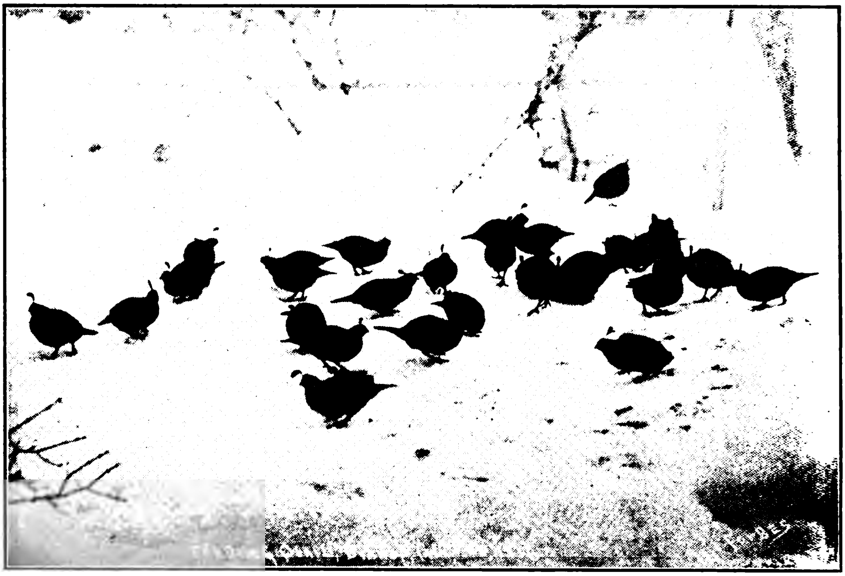


Fig. 11. Feeding quail, winter 1915–1916, at Bishop, California.

The San Francisco District office has a most difficult problem in the large alien population of the Bay cities. Effort has been largely concentrated on the strict enforcement of the fish and game laws pertaining to the coast districts (see pages 135–137). The legal shipments and sale of game in San Francisco have been carefully supervised, and due to the activities of the efficient patrol service the illegal shipment and sale of game has been practically eradicated. The transfer companies, which were subterfuges by the commission houses to evade the limit law on ducks, have been put out of business and further attempts to evade the law by making parcels post shipments have been prevented.

The Fresno Division office has been instrumental in greatly improving fishing conditions in the Sierras. Trout fry have been carried by pack train to the most isolated streams and lakes. The range of the beautiful golden trout has been greatly extended and several stocking experiments

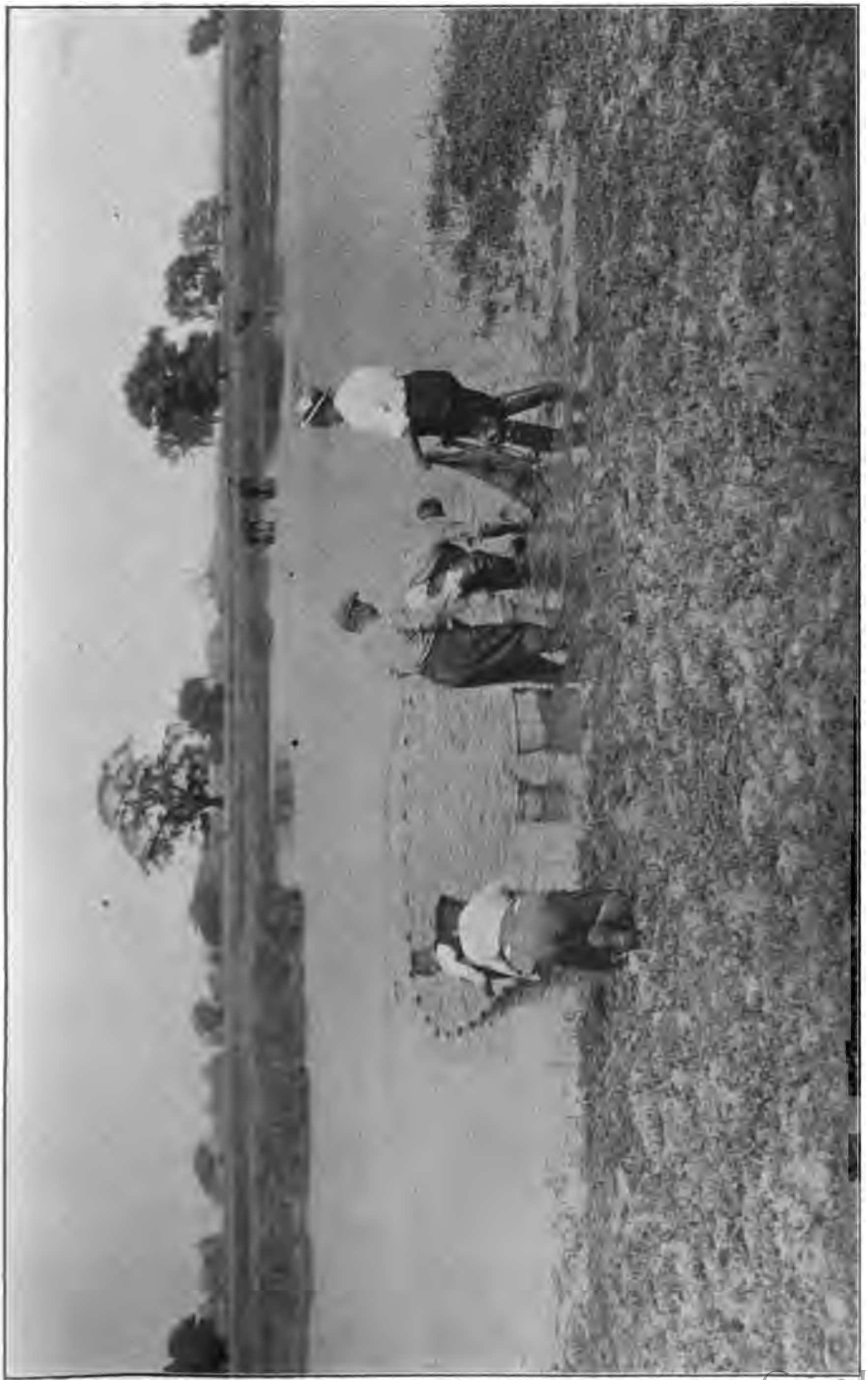


Fig. 12. Seining fish from overflowed areas in the Sacramento Valley. Photograph by McCurry Company.

of value have been instituted. Of particular interest is the experiment now under way, devised to test the present theory regarding steelhead trout. A number of these trout have been placed in barren waters in the high Sierras where they will be landlocked. It is hoped that the experiment will demonstrate whether this sea-run form will revert quickly to the landlocked form (see pages 147–153).

The attempt has been made to stop, as far as possible, the pollution of waters by refuse from wineries, sugar factories, gas plants, and oil refineries. Many investigations have been carried on to determine the amount of pollution, and many manufacturing companies have been forced to install filters and other devices for preventing pollution. Marked improvement is to be noted in the type of equipment used. The old straw filter used for obtaining lampblack has been succeeded by three types of mechanical filters—the Oliver, the Kelly and the Butters, the latter of which appears to be the most successful. We are glad to acknowledge the cooperation of all of the larger companies. They have willingly expended thousands of dollars in the attempt to prevent waste destructive to fish from entering the waters of this state. For a more detailed report, see pages 127–134.

There has been a steady reduction in the number of lion bounties paid and it is evident that mountain lions have become greatly reduced in number. As a consequence thousands of deer are saved each year. Bounties were paid on 162 lion scalps in 1915 and on 111 between January 1 and June 30, 1916, as against 482 in 1908, 361 in 1909 and 333 in 1910. Without taking into consideration cattle and sheep, the saving in deer alone has more than justified the total expenditure of $49,160 during the last nine and one-half years, during which time the bounty has been in force. We are glad to report that there has been little or no fraud connected with the payment of lion bounties. A claim for each lion must be made upon a blank form and this must be signed by the claimant and three witnesses and acknowledged before a notary or justice of the peace. In addition, the claim must be accompanied by an account of the pursuit and killing of the lion, giving details as to the method used, the number of deer carcasses left by the animal, and such other facts as may be of assistance in determining the damage done to deer and other game. Two litters of young animals sent in were found to be on examination the young of coyotes. There was no evidence, however, that the men making application for bounties on these animals were not sincere in their belief that they were young mountain lions. It may be that the lion bounty should be increased in order to still further reduce the species.

The above are a few of the many activities of the commission directed toward the better protection of fish and game.

The Patrol Force.

There are in the employ of the California Fish and Game Commission sixty-eight assistants or deputies who do active patrol duty. Additional temporary assistants are employed during the open seasons. The regular assistants are stationed in various parts of the state where fishing and hunting conditions are the best and in centrally located places from which they can cover to the best advantage the district allotted to them. The assistants are not bound by any arbitrary lines but are expected to extend their activities into adjoining districts. In this way, there is left no unguarded area such as there would be if they were bounded by fixed lines.

Each assistant is encouraged to work with the one in charge of the adjoining district and whenever help is needed to bring violators to justice, the two are expected to assist each other as fully as possible. Deputies are often concentrated in one locality to apprehend chronic violators and new men are sent into old territory in order to make the work more effective.

All of the employees and assistants of the Fish and Game Commission are now under civil service regulations. The assistants are selected after a rigid examination. This examination, consisting of two parts—one written, the other oral—is given by a board of examiners, the members of which have had many years of experience in the enforcement of the game laws. In the oral examination, the candidate is called before the examiners. Each examiner then checks on a form the various characteristics of the applicant—his appearance, health, decision, manner, information, reliability, ambition, body-build, alertness—in fact, every characteristic that has any bearing upon the duties to be performed. Questions are asked that are intended to bring out the candidate's understanding of game and fish conditions and his ability to look after himself and camp stock under all conditions and his understanding of what game conservation really means. In this way, the candidates peculiarly fitted for practically every branch of the service are secured. Although ratings are made separately by each examiner, invariably the same conclusion in regard to the candidate's fitness is reached. The written part of the examination includes questions that will bring out the candidate's idea as to the meaning of the various laws, his ability to tell from hypothetical questions as to whether a violation has occurred and his knowledge of the habits of the various species of game to be found in the state. None of the questions is particularly difficult and should be found easy by the candidates having a general knowledge of the duties of an assistant and of the interpretation of the game and fish laws. By reason of the care taken in the selection of assistants, it will be possible in a few years to have a force of men who not only have the natural ability, but who have a very deep interest

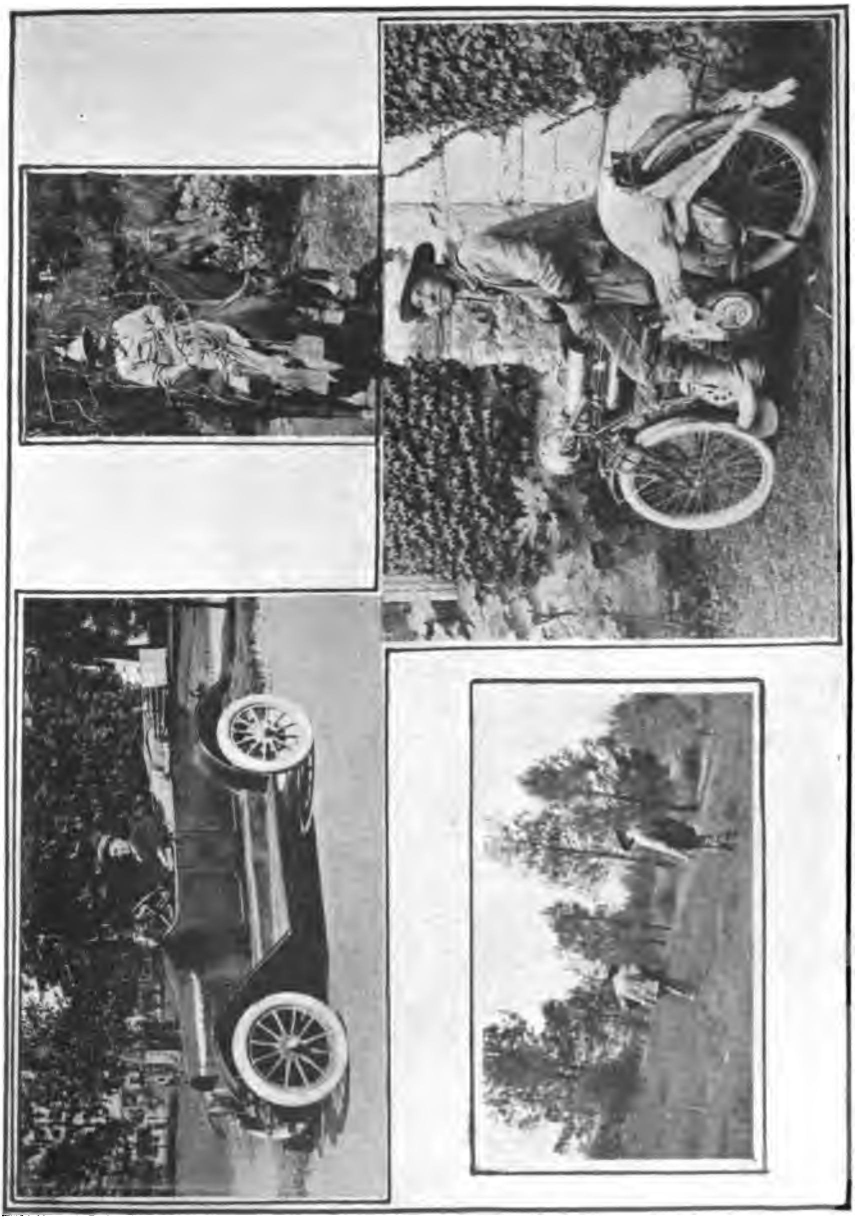


Fig. 14. The deputy at work. Transportation is made by automobile and motorcycle, and on horseback and on foot. The deputies pictured are I. L. Koppel, Raymond O'Connor, J. H. Hill and C. A. Scroggs.

in the conservation of fish and game. Without these qualifications no one who is charged with the enforcement of the game laws can be successful.

During the past several years, the Fish and Game Commission has had an auxiliary force of unsalaried assistants. In certain instances excellent results were obtained through these men, but in general the results were very disappointing. Most of them did not take an active interest in law enforcement. Some of them even used their badge to cover up their own and their friends' violations. Frequently very flagrant violations were overlooked and more frequently petty cases were sworn to that should have been handled outside of court. At the time that the Workmen's Compensation Act went into effect, it was realized that the expense of carrying insurance on the army of special assistants was not warranted—a ruling from the Attorney General being to the effect that the commission was liable for accidents that might occur. On this account it was decided to cancel the appointments of all special deputies.

A "Manual for Deputies," arranged by Messrs. A. D. Ferguson, George Neale, R. D. Duke, J. S. Hunter, and W. H. Shebley, was published in May, 1914. This manual deals with the more important phases of a deputy's problems, and gives an insight into the powers and duties of deputy fish and game commissioners. It is of particular value to the newly appointed officer. The six divisions of the Manual appear under the heads: Qualifications, Arrests, Expense, Routine and Forms, Decisions and Civil Service Regulations. The following quotations from Part I, show the standards which are set for deputies of the California Fish and Game Commission:

> *Qualifications*—A deputy fish and game commissioner should be honorable in all his dealings; whether with the public, his superior officers or his fellow deputies. The eye of the public is upon him; the honor of the commission is in his keeping. A deputy is out of place in the great and important work of conservation in which the California Fish and Game Commission is engaged unless he can command the respect of those with whom he comes in contact. Even the most persistent lawbreaker is bound to respect the self-respecting, upright officer, though he bring him to justice and punishment. * * *
>
> *Energetic*—The good things in his line do not come to the deputy who waits for them. The duties of the deputy fish and game commissioner are peculiar in that—unlike a sheriff or other peace officer, who usually acts upon information furnished by others—the deputy must, from the nature of things, himself take the initiative. He must not only do patrol duty in the ordinary sense of the word, but he must endeavor to anticipate the movements of those who would violate the fish and game laws. He must be ever alert. He should thoroughly post himself on those sections wherein

> the fish and game laws are most frequently violated. He should study the methods of the professional game law violators. He should cultivate the friendship of law-abiding people and open channels for information concerning those things of which he ought to get early knowledge.
>
> *Courageous*, but courteous, is a qualification which goes far in the making of a good officer. A timid man can accomplish little; an overbearing one can do more harm than good. * * *
>
> *Tactful*—Poise is essential. A reputation for making arrests on frivolous grounds or for being too easily persuaded to drop prosecution is alike detrimental to the deputy's chances for efficiency. No hard and fast rule can be laid down as to when to make arrests; the deputy must exercise his judgment. But on general principles no consideration of prominence or influence, when the offending party is of the age of mature judgment, should cause the deputy to deviate from his attitude of dispassionately but firmly insisting that the law be vindicated. * * *
>
> *Relations with other officers*—The position of deputy fish and game commissioner is unique as compared to other officers of the state, county, or municipal governments, inasmuch as his duties are at once executive, administrative and educational. While his jurisdiction conflicts in no way with that of other peace officers nor theirs with his, yet sheriffs, constables, policemen, harbor officers, and inspectors of various arms of municipal governments are all in a position to render him invaluable assistance. The deputy should earn the confidence and respect of all such officers that their cooperation may be ready and voluntary. * * *

Under the heading "Arrest" the deputy is directed when to make an arrest, how to make an arrest, what degree of force may be used, and what disposition is to be made of a prisoner. What kind of expenses may be incurred by the deputy in the discharge of his duties, and the manner of presenting his claims for reimbursement is described under the heading "Expense Claims."

The efficiency of the patrol service has been greatly improved in the past few years because of the increased facilities of transportation which have been provided. Most deputies now have automobiles; others motorcycles. An allowance of a certain amount per mile, while the automobile is used in connection with a deputy's work, covers expenses and upkeep. The distance which can be covered in patrol work is thus increased many times and the tracing of all violators made possible. Four patrol boats are now in service and Evinrude motors make the use of smaller patrol boats possible on the rivers during certain seasons. However, a large patrol boat for use in enforcing commercial fisheries regulations along the southern California coast and offshore islands is essential to the proper enforcement of laws and the gathering of needed scientific data.

Propagation of Game Birds.

Little effort has been made to continue the introduction of foreign game birds. Believing that sufficient attempts have been made to stock the state with ring-necked pheasants, and that the game farm has not proved its worth, the efforts at propagation on the farm have been curtailed. Consequently, but few ring-necked pheasants have been reared, and only a few hundred birds have been liberated. In order that breeders might be furnished information as to the possibilities in quail and duck breeding, the farm has been stocked with valley quail and wild ducks and experiments carried on to determine the success which can be obtained in artificially rearing them. The main justification for a game farm appears to lie in its value as a station for carrying on breeding experiments, the results of which will benefit game breeders, rather than in its value as a practical means of increasing game. Judging from the experience of other states it seems best that the greater amount of effort be placed on the conservation of native species rather than on the introduction of foreign ones which are apt to supplant valuable native species, become pests, or introduce some infectious disease. A detailed report on the activities of the Game Farm can be found on pages 120–126.

Fish Culture.

In order that hatchery operations might be better administered the office of the Department of Fish Culture was moved from Sisson Hatchery to San Francisco in the fall of 1915. W. H. Shebley was placed in full charge of the department and E. W. Hunt was appointed Field Agent with the detail work of the hatchery and the car messenger service under his supervision. G. H. Lambson, of the United States Bureau of Fisheries, formerly superintendent of Baird Hatchery, qualified through civil service as superintendent of the Sisson Hatchery. These changes have greatly facilitated the work of this department.

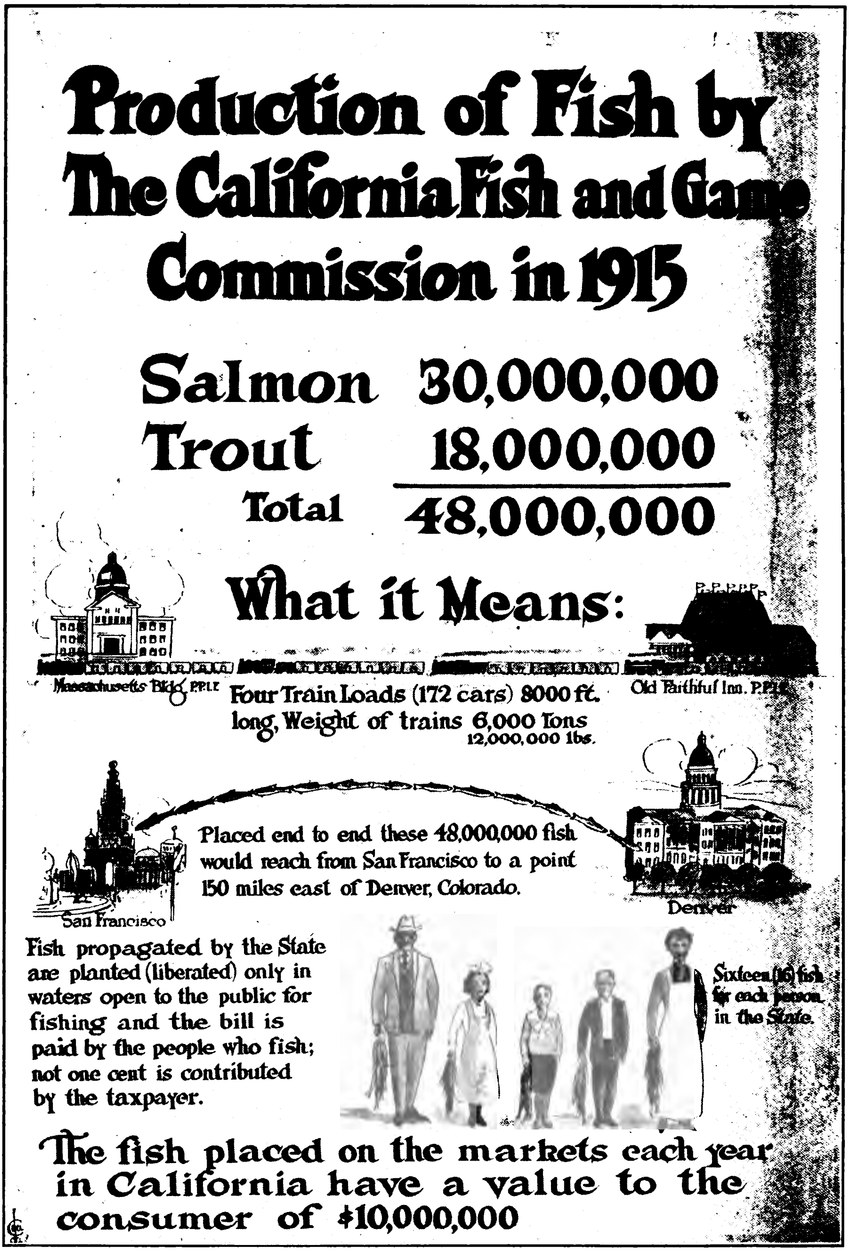
The hatcheries of the state have propagated a larger number of fish in this than in any previous biennial period. During the season of 1915 alone, 48,000,000 fish were planted in the streams of California, a number sufficient to furnish every resident of the state with sixteen fish (see Fig. 16). Eight hatcheries and six egg collection stations have been operated to their full capacity and the present stations will have to be enlarged and new ones installed in order to meet the increasing demand for trout fry. An additional hatchery building has been erected at the Sisson station, making five buildings in all. With this added equipment it is possible to hold the fry until they attain a better growth and hence are better able to withstand the changed conditions incident to planting.

As in past years, the salmon eggs procured from the United States Bureau of Fisheries have been hatched at this station and the fry carefully reared and fed until they were two or three months old, at which time they were distributed in the Sacramento River and tributary streams near Sisson, and in the Klamath River. In addition, a large number of fry have been held in ponds until they were eight months old. They were then distributed in the Klamath and Sacramento rivers early in the fall. Experience has shown that the best results in salmon culture are to be obtained by rearing several million fry on the upper reaches of the Sacramento River where the water is pure and cold and where the fry can be liberated in the headwaters of the Sacramento out of reach of the predatory fishes which infest the river lower down.

Fig. 15. A view of Mt. Shasta, at the southwestern base of which is situated the Sisson Station, the largest hatchery in the state. The snows on this mountain help furnish a pure cold water supply for the hatchery.

So large a number of trout fry were reared at the Sisson station that two cars had to be employed in the distribution of these fish. A baggage car was rented from the Southern Pacific Company and equipped with a gasoline engine and aerating system (see Figs. 20 and 21).

It has been found that the retaining of a stock of brood fish in the ponds gives a dependable supply of eggs each year. The take of eggs in the rivers, on the other hand, is variable. The pond system is therefore being improved. There were on hand in the ponds at the Sisson Hatchery on July 1, 1916, over 300,000 brood fish.



Production of Fish by The California Fish and Game Commission in 1915

Salmon	30,000,000
Trout	18,000,000
Total	48,000,000

What it Means:

Four Train Loads (172 cars) 8000 ft. long, Weight of trains 6,000 Tons 12,000,000 lbs.

Placed end to end these 48,000,000 fish would reach from San Francisco to a point 150 miles east of Denver, Colorado.

Fish propagated by the State are planted (liberated) only in waters open to the public for fishing and the bill is paid by the people who fish; not one cent is contributed by the taxpayer.

Sixteen (16) fish for each person in the State.

The fish placed on the markets each year in California have a value to the consumer of $10,000,000

Fig. 16. Fish distributed in 1915.

The Tahoe hatcheries have been operated to their full capacity during the last two seasons. It is planned to acquire a new site for the Tallac Hatchery where fry can be held until later in the fall. Fry if reared to a large size stand a better chance of survival after being planted in the Lake. The Department of Fish Culture is planning to make increased efforts to propagate lake trout (*Salmo tahoensis*). This valuable fish should be increased in number by artificial propagation. New varieties of game trout should be added to the native species now found in Lake Tahoe.

Brookdale Hatchery was operated during the season of 1915–1916 under a lease procured from Santa Cruz County. As a return for the use of the hatchery Santa Cruz County annually received 500,000 steelhead trout fry to be distributed entirely in the public waters of that county. Over 3,000,000 fish were reared at this hatchery in 1915 and over 1,500,000 in 1916.

The Ukiah and Fort Seward hatcheries reared both steelhead and rainbow trout. At the Fort Seward station 140,000 black-spotted trout, obtained from Lake Almanor, were reared and distributed in the Mad and Eel rivers. The situation of this hatchery is such that it can also be used for salmon culture. Next year an attempt will be made to obtain a supply of eggs from the Eel River.

The Bear Valley Hatchery, established by San Bernardino County, has been operated by the commission during the past two years. All of the fry reared were planted in Big Bear Lake and nearby streams of San Bernardino County. Adverse conditions hindered operations in 1916 and the output was therefore below normal.

The new temporary hatchery installed at Lake Almanor Dam, in Plumas County, had a successful season in 1916. At this station 1,635,000 rainbow trout eggs were collected and held until ready for shipment. Plans are being made for an additional egg taking station at Domingo Springs, one mile from Rice Creek Falls. This egg collecting station will help furnish a supply to the Almanor Hatchery.

The egg collecting station established on Hat Creek in 1915 had to be abandoned because of the tremendous flood of mud sent down the Hat Creek Valley as a result of the eruption of Mount Lassen. Not only were operations necessarily suspended, but all the fish in the stream, from its source to its confluence with the Pit River, were destroyed. This was one of the most serious destructions of fish life in recent years in California.

A location for a Southern California hatchery has finally been selected and what will be the most up-to-date hatchery in the world is now being built on Oak Creek, in Inyo County. The hatchery building, 192½ feet by 45 feet, is being constructed of natural stone, gabro and granite taken from the floor of the valley nearby and will cost approximately $60,000. The lower floor will contain, in addition to the hatchery room, offices, storerooms and a laboratory, and the second floor will furnish quarters for the help. The most up-to-date plumbing will be used. The location of this hatchery is unique, with snow-capped Mt. Whitney, the highest peak in the United States, in the background and Death Valley, 427 feet below sea level, seventy miles to the southeast—the roof and the cellar of the United States. The situation on Oak Creek will furnish an abundance of pure, cold water and eggs for the hatchery will be obtained at the Rae Lakes in the Sierras, at an elevation of 10,500 feet, reached by crossing a pass 13,000 feet in elevation. The rising generation may be able to point to this hatchery as the finest and most beautiful one in the world. This new hatchery will be able to supply fish to all points in southern California and as far north as Merced and the Yosemite Valley.

THE OLD AND THE NEW.

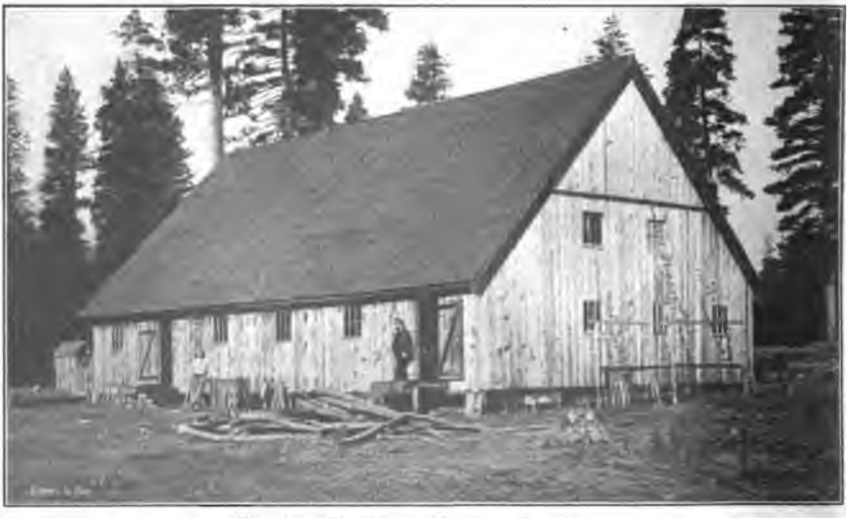


Fig. 17. The Sisson Hatchery in 1894.

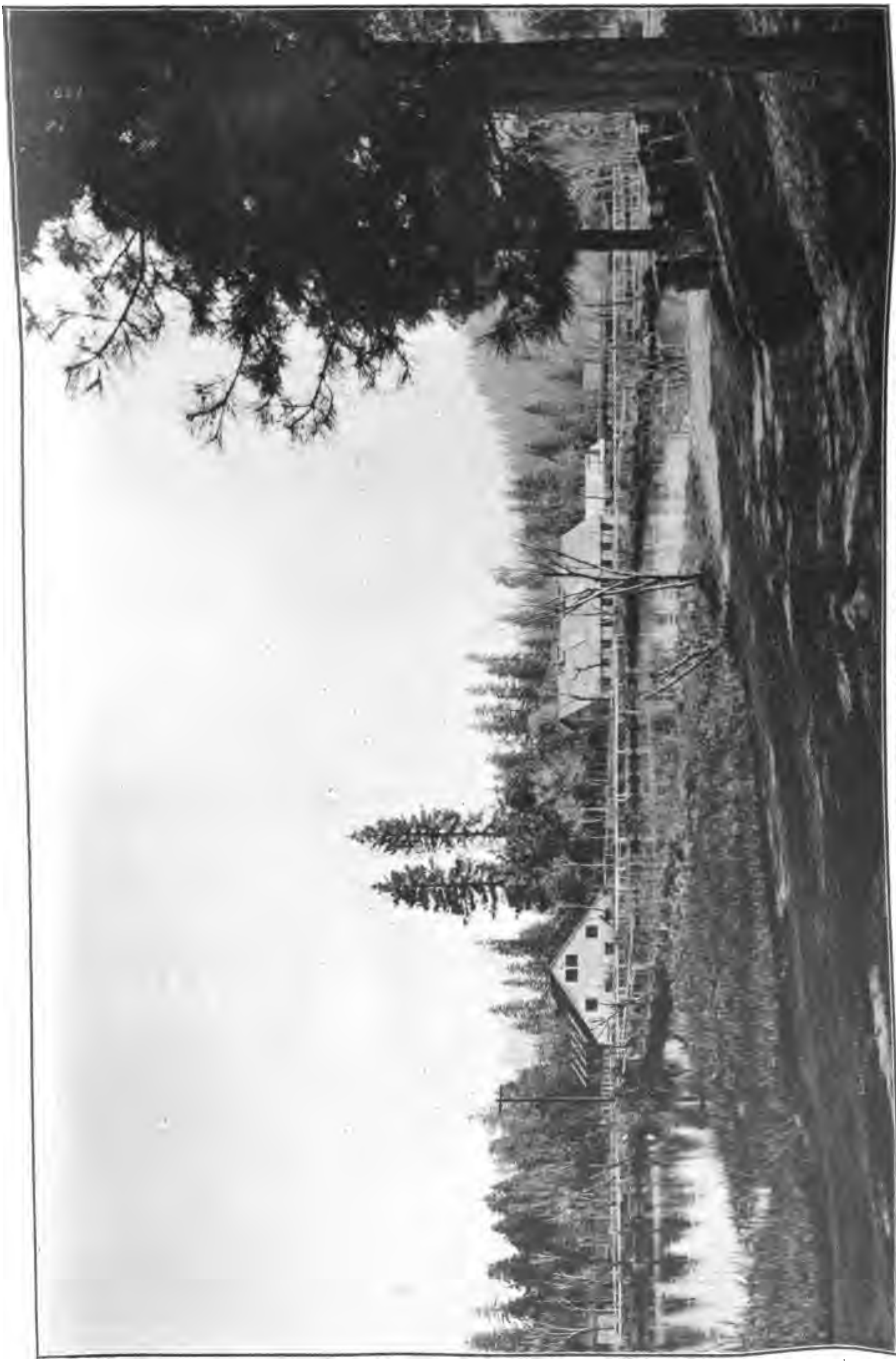


Fig. 18. The Sisson Hatchery in 1916. On the grounds are five large hatchery buildings, several smaller hatching houses, and cottages for employees. Photograph by Union Lithograph Company.

FROM HATCHERY TO STREAM.

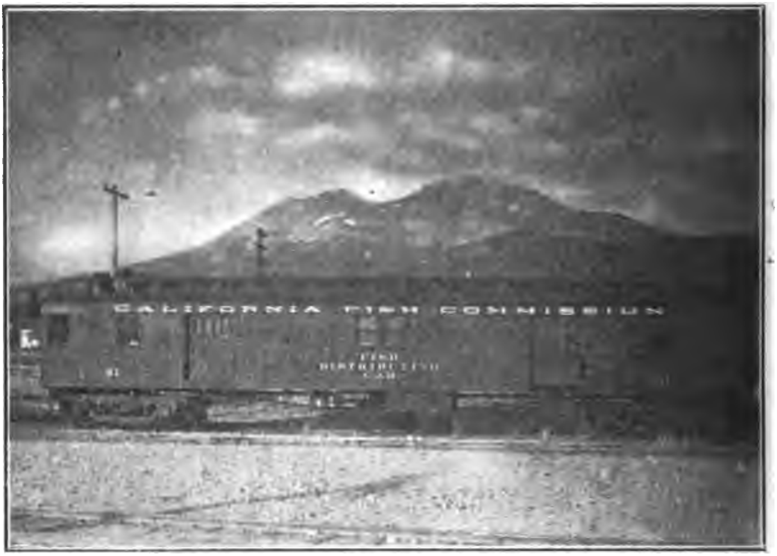


Fig. 19. Fish car No. 1.

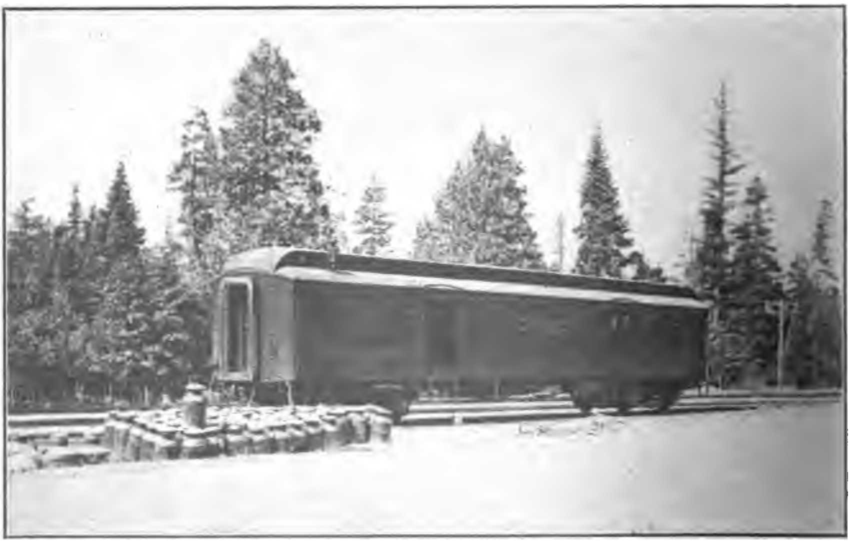


Fig. 20. Fish car No. 2 on the siding at Sisson.

FROM HATCHERY TO STREAM.

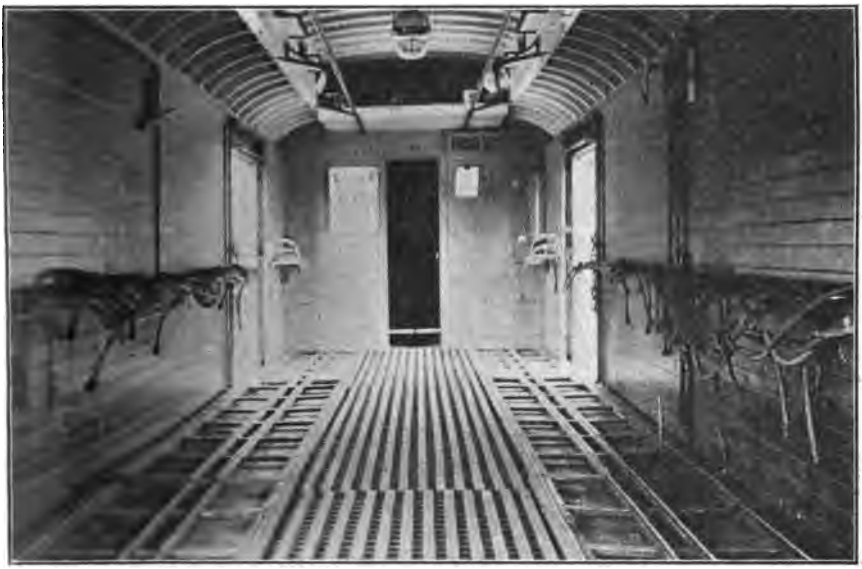


Fig. 21. Interior of fish car No. 2, showing aerating apparatus.

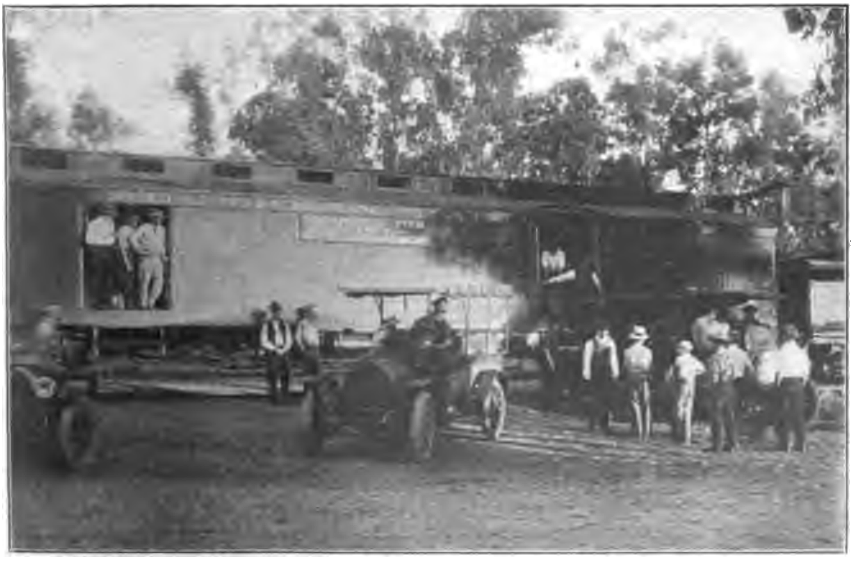


Fig. 22. Receiving fish from fish car preparatory to planting. Photograph by McCurry Company.

FROM HATCHERY TO STREAM.

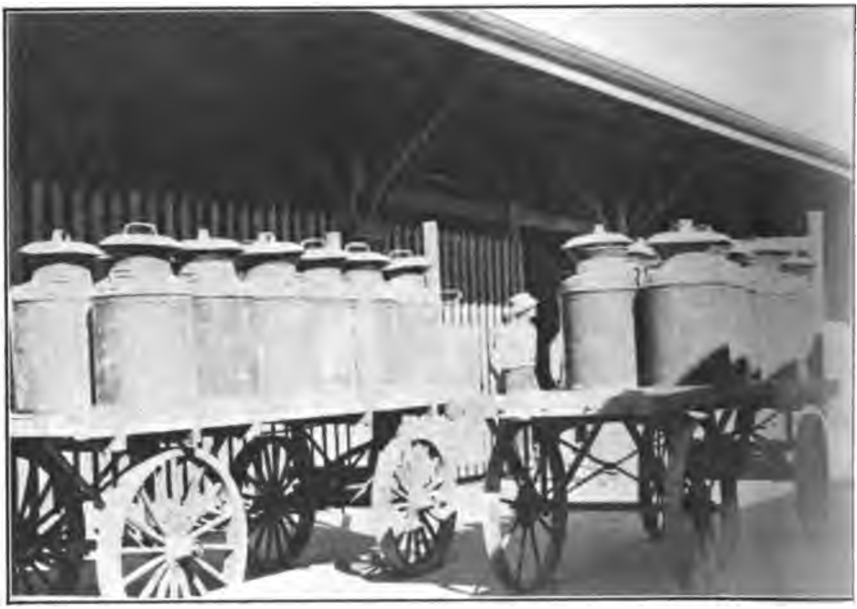


Fig. 23. Trout being removed from fish car at station.

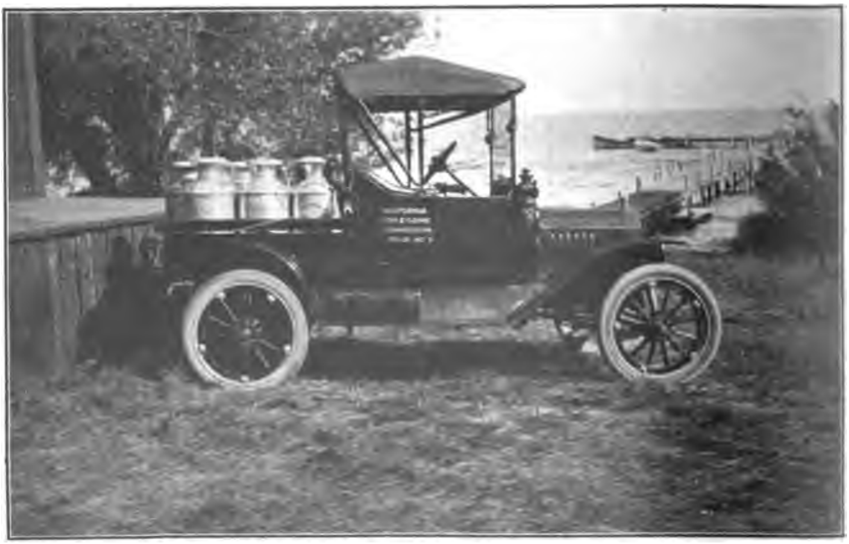


Fig. 24. Truck No. 3, one of the automobiles used in fish planting operations at Lake Tahoe.

FROM HATCHERY TO STREAM.

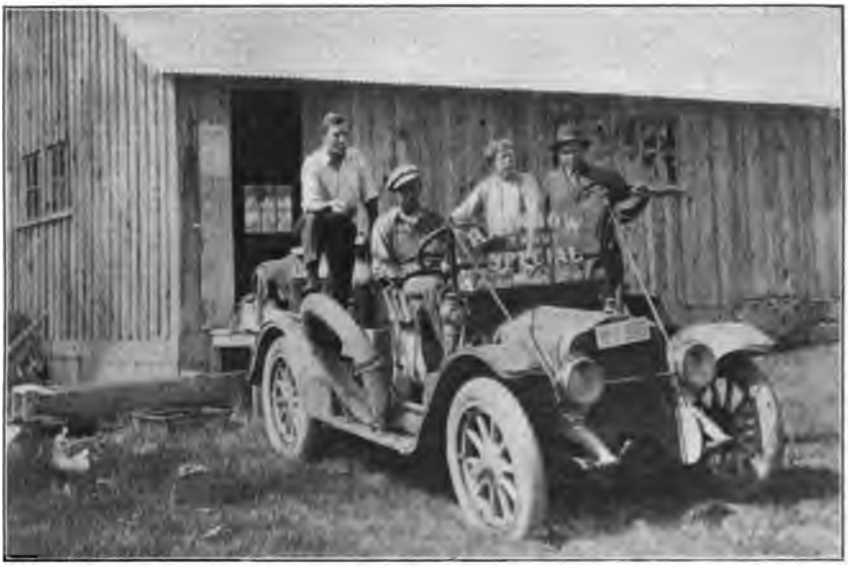


Fig. 25. Fish planting by automobile in San Bernardino County. The Bear Valley Hatchery in the background.

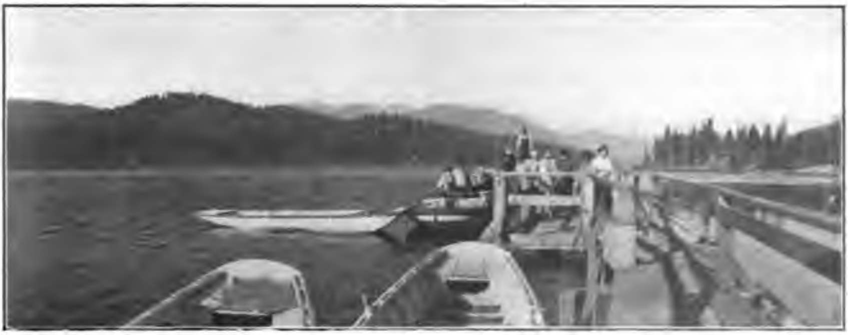


Fig. 26. Transportation of fish by boat preparatory to planting in Huntington Lake, Fresno County. Photograph by A. D. Ferguson.

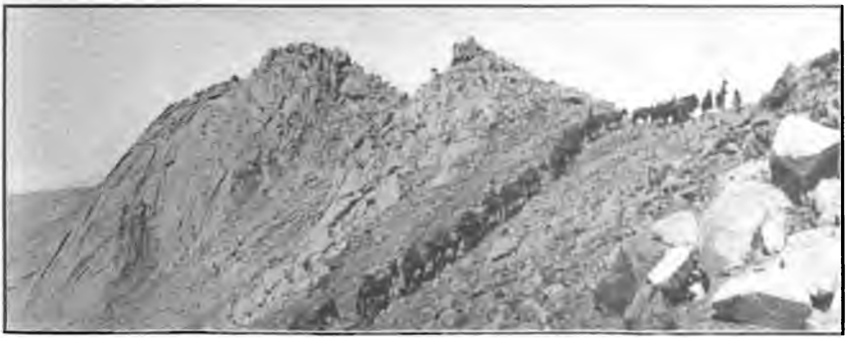


Fig. 27. Transportation by means of pack-train in the high Sierras. By using this means of transportation it is possible to plant many streams otherwise inaccessible. Photograph by A. D. Ferguson.

FROM HATCHERY TO STREAM.

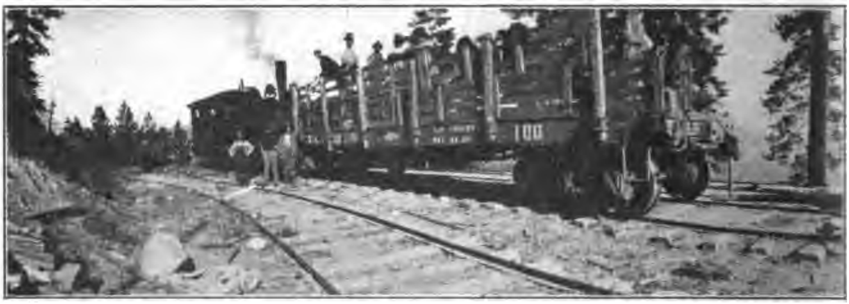


Fig. 28. Trout being transported to high mountain streams by means of a logging train. Photograph by A. D. Ferguson.

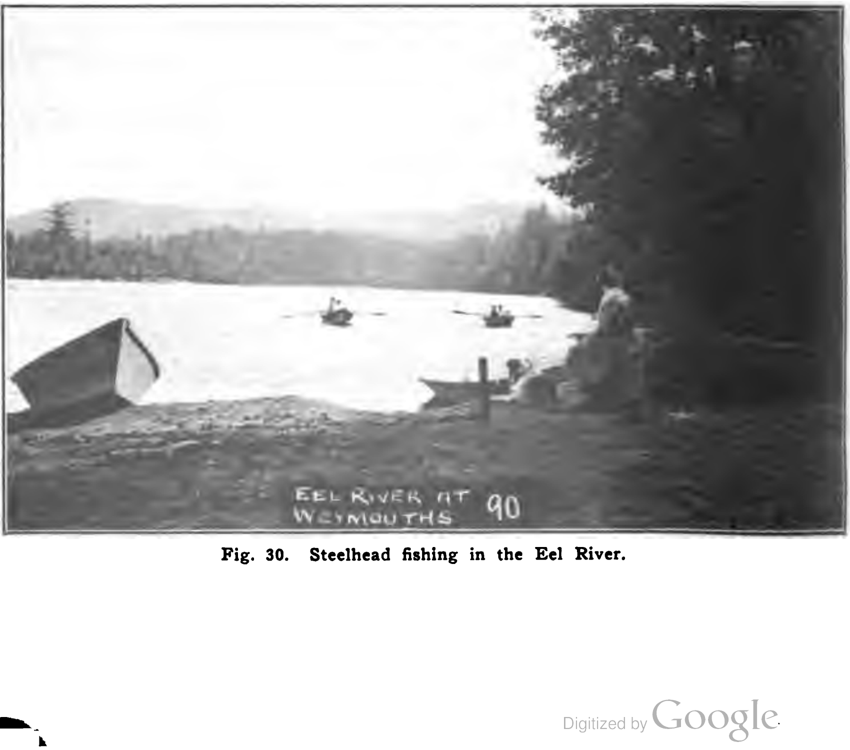


Fig. 30. Steelhead fishing in the Eel River.

FROM HATCHERY TO STREAM.

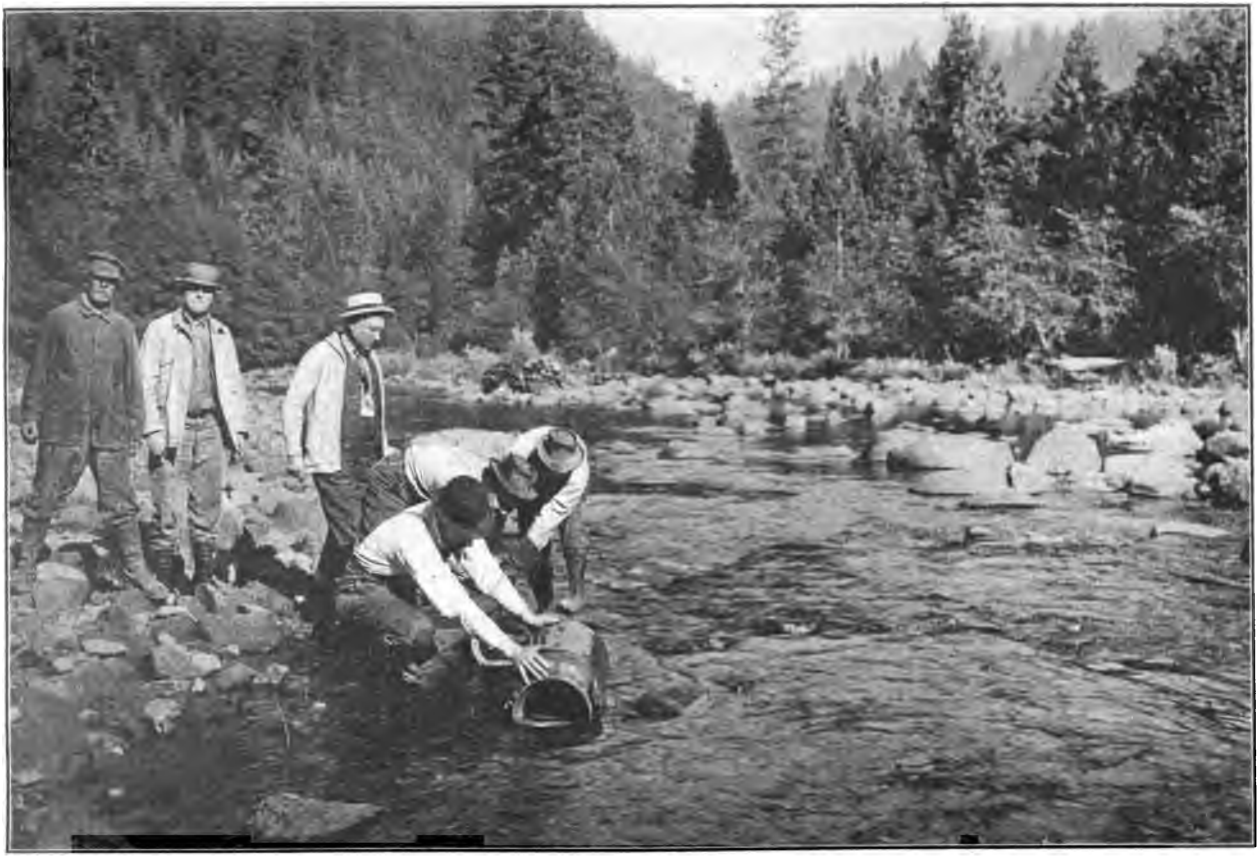


Fig. 29. Planting 20,000 trout at Maple Grove, near Placerville, California. Copyrighted photograph by F. W. Smith.

The falling off in the supply of shad in the Sacramento and San Joaquin rivers has necessitated investigations leading towards the institution of shad propagation. Shad were originally introduced into California by the Fish Commission in 1871. The fish for stocking were procured from eastern states. Within a few years shad became very abundant and they have continued so until recently. On the other hand, shad in the eastern states from which they were obtained have greatly decreased in numbers and requests have been received from the Massachusetts and Connecticut commissions for shad eggs for use in their hatcheries. In order to determine whether shad culture is feasible in California an experimental station was erected on the Sacramento River at Yuba City. Experiments proved that shad eggs can be successfully hatched and the fry kept free from bacteria and fungus. It is planned to hatch several million shad and striped bass this coming year. For further details of the fish cultural work see pages 54–79.

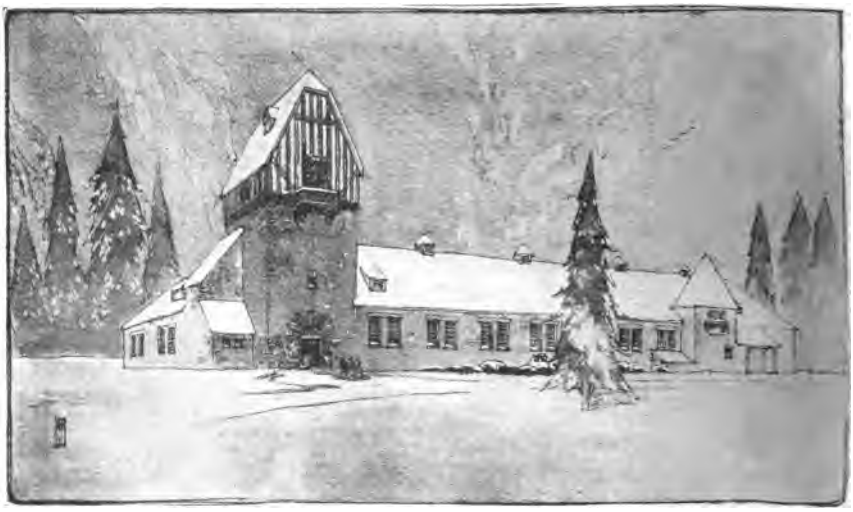


Fig. 31. Architectural drawing of the new Inyo Hatchery, situated on Oak Creek, Inyo County. This hatchery, located near the state highway, will, when completed, be the most modern hatchery in the United States.

Although the supply of fish in our streams does not appear to be decreasing, yet new conditions may endanger the supply. The number of anglers is increasing each year. Furthermore, each angler is increasing his annual catch. Streams which were formerly inaccessible are now reached with ease by means of automobiles. Consequently, greater and greater demands are made upon our hatcheries. To meet this demand new stations must be established and old ones enlarged. It also may be that some limitation upon the number of fishing days per week or the making of a shorter open season will alone counteract the effect of the ever increasing catch.

If there were no other justification for the existence of the Fish and Game Commission it could well rely upon the results of its attempt to stock the streams of the state with fish. Hundreds of lakes and streams formerly barren of fish life now contain millions of fish and these fish furnish food and recreation for all who will cast a fly or drop a line. Trout are now to be found in nearly every living stream easily accessible to the angler. Furthermore, there have been introduced into the waters of the state a number of food and game fishes not formerly found here. Black bass, striped bass, shad and several other species now add greatly to our fishery resources. Due to the activities of the commission the state of California offers as fine fishing as can be found anywhere, for there are far more fish in the lakes and streams than there were when the white man first came to the state.

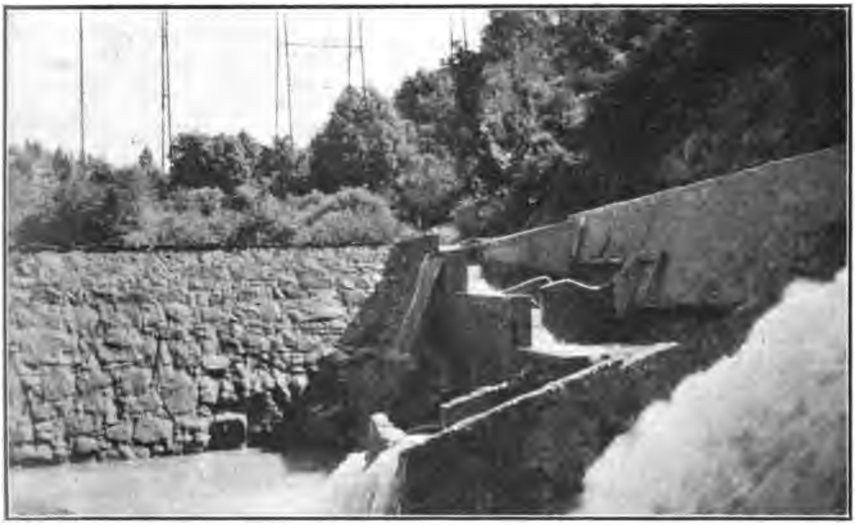


Fig. 32. Fishway built by Pacific Gas and Electric Company on Bear River, Placer County. Photograph by A. E. Culver.

Fishways and Screens.

Considerable progress in the installation of fishways and screens has been made. Eighty-six suitable fishways have been constructed at many places where fish have been unable to ascend streams because of dams or some natural obstruction, and ninety-two other sites have been surveyed. By the removal of large boulders and other natural obstructions the breeding grounds of fish have been greatly extended. In one instance more than 100 miles of spawning grounds were added by the removal of such an obstruction.

Experience has shown that the largest canals can be screened and the flow of water be undiminished. Even the work of cleaning has been reduced to a minimum. Large revolving screens which work in sections can be quickly cleaned by turning a crank, thus saving the labor attached to the cleaning of a parallel-bar screen. The cost of a 50-foot screen of this type is approximately $2,200. With the exception of the San Joaquin Valley, where some of the large canal owners are resisting the order to install screens, we have met with willing cooperation. Nearly 600 surveys have been made and 377 screens have been installed.

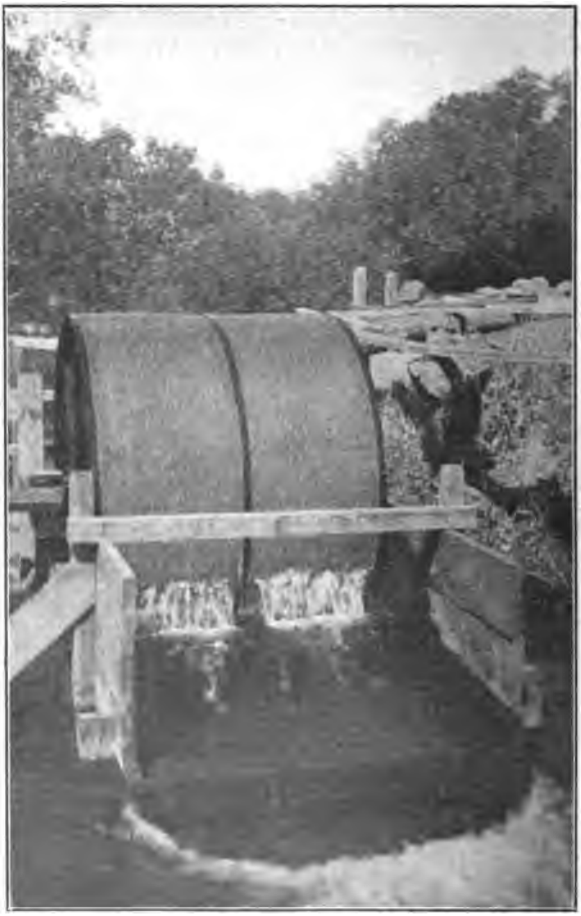


Fig. 33. Screen installed in an irrigating ditch near Edgewood, Siskiyou County. Fish are prevented from entering this ditch, but the flow of water is unhampered. Photograph by A. E. Culver.

Commercial Fisheries.

The rapid growth of our fisheries has necessitated more detailed and accurate knowledge in order that our fishery resources may be intelligently conserved. The Department of Commercial Fisheries, established in 1914, has been making careful study of the coast fisheries and has been gathering data which will be valuable as a basis for future legislation. A law enacted by the last legislature requires dealers and handlers of fish to make accurate monthly statements of the quantities and varieties of fish handled. These reports are being systematically compiled and the statistics regarding fishery products are being published in CALIFORNIA FISH AND GAME. Study has been made also of fish marketing and the department is at present cooperating with the State Market Director in attempting to unite the producer, the dealer and the people for their mutual benefit, and in fixing the maximum price the consumer should pay for fish. Largely due to the fact that accurate data was supplied the Market Director by this department of the Fish and Game Commission, splendid results have been obtained.

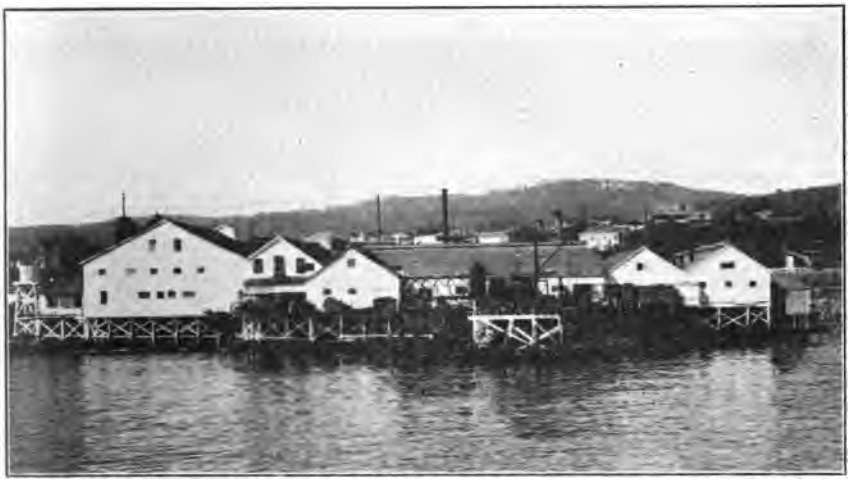


Fig. 34. Monterey Packing Company's plant at Monterey. Here large quantities of salmon are canned and mild-cured, and sardines canned. Photograph by H. B. Nidever.

A large number of marked salmon fry were liberated in the Sacramento River, Scott's Creek and San Lorenzo River in 1911 and 1912. A considerable number of these fish which have returned to the same streams have been obtained and data as to the age at which salmon seek fresh water, which is of much importance, is accumulating. Further experiments of this kind have been instituted.

Several important developments in California fisheries have necessitated careful study in order that control measures might be instituted. Of particular import is the growth of the long-finned tuna or albacore industry. The output of canned tuna now is more than double the value of the output of salmon or sardines. The tuna packers themselves are anxious to know more about the migration and life history of the albacore. Fortunately the United States Bureau of Fisheries has begun an investigation, but there is still much to be done.

Shad in the Sacramento and San Joaquin rivers have been decreasing during the past few years, due to overfishing. The total catch for 1915 was 3,816,048 pounds. Thirty-three carloads of fresh shad were shipped east. If this amount of fishing continues protective measures will be necessary to prevent serious injury to this fish. Already dangerous conditions are to be found. A record made in 1914 of the proportion of male to female shad on the upper San Joaquin River showed that the males outnumbered the females twenty to one. The sexes are normally about even. If an emergency measure could have been passed by the Fish and Game Commission the situation could have been promptly dealt with. This not being possible, no measures can be instituted until the meeting of the next legislature.

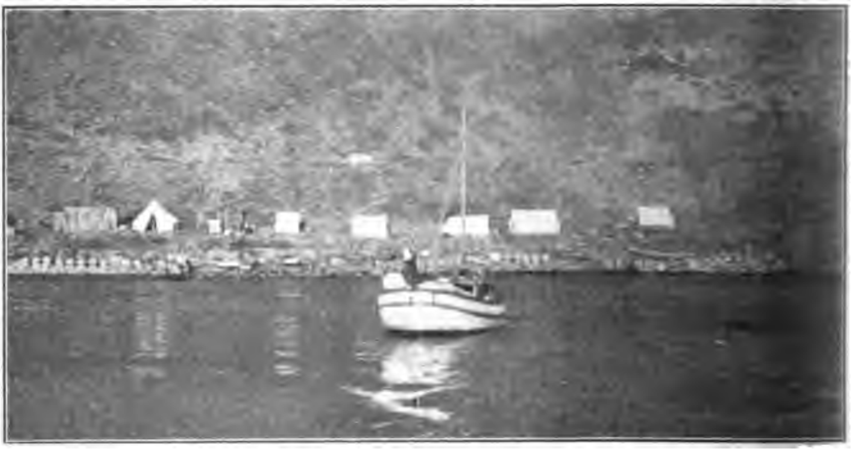


Fig. 35. Temporary camp of crawfishermen on San Clemente Island, showing new crawfish traps on shore ready for use. Photograph by H. B. Nidever.

The annual catch of California halibut exceeds 5,000,000 pounds. Although this fish is better protected than ever before, owing to the fact that dragnetting has been prohibited and the present law prescribes an eight-inch minimum mesh, it may be necessary to still further increase the mesh limit and a further conservation measure might be the closing of small areas to fishing.

Stringent laws now prevent the drying of shrimps, and the former destruction of young fish is prevented by confining shrimp fishing to South San Francisco Bay. At present only a few boats fish intermittently and the catch totals only about 350,000 pounds per year. Profit in the past has rested principally in dried shrimps since the price obtained for fresh ones—six and seven cents per pound—does not cover the higher operating cost.

Increased demand for potash which formerly was imported from Germany has led to the establishment of a new industry. The immense beds of kelp found along the California coast are now being cut and the kelp converted into potash. Four companies are operating at San Diego, five at Long Beach and one at Wilmington. Several new factories are under construction. It is believed that this industry will not have a serious effect on any of our fisheries. Many have feared that cutting of kelp would destroy the breeding grounds of the barracuda and the spiny lobster. Preliminary investigations do not support this view. There are other allied questions awaiting solution. For instance, it is important to know how the present operations may be regulated in order to assure a future supply. Already there is talk of county ordinances. Kelp and like products come under the jurisdiction of the Fish and Game Commission and regulatory legislation is being planned.

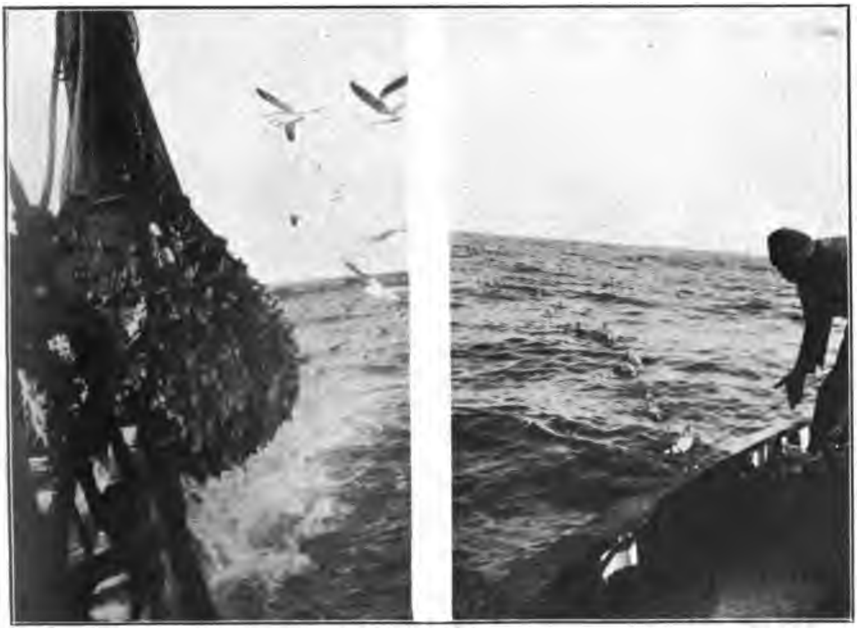


Fig. 36. Hauling 3-ton catch of fish aboard steam trawler off Point Reyes. Monterey fishermen hauling in rock cod off Point Sur. Note fish on line floating on surface. Photographs by H. B. Nidever.

Many of our sea fisheries have not been fully developed. The rapid growth of the sardine and albacore fisheries in the past few years is evidence of this. The albacore, formerly an unappreciated food fish, now takes rank as the most valuable of all. Were people made acquainted with several other species of fish other new fisheries might be developed. The shell fisheries of this state have been largely

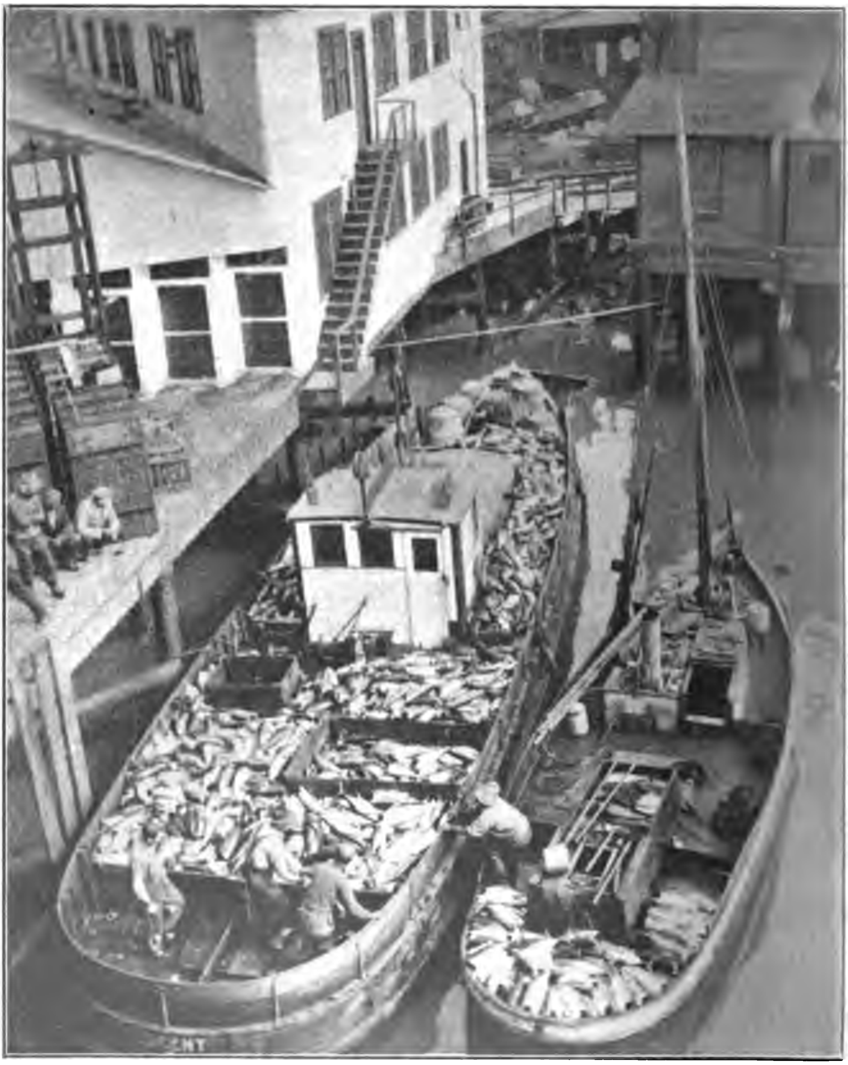


Fig. 37. Ready to unload tuna (albacore) at Van Camp's tuna cannery, 1914.

neglected. Many species of shellfish found in abundance along the coast would make excellent food were people educated as to their value. Furthermore, the soft-shell clam from the Atlantic coast could be profitably distributed here in bays where it does not now appear. There is also a future for oyster culture in California. To stimulate interest in these undeveloped fishery resources and aid in developing them is one feature of the work of the Department of Commercial Fisheries. For further details see pages 80–101.

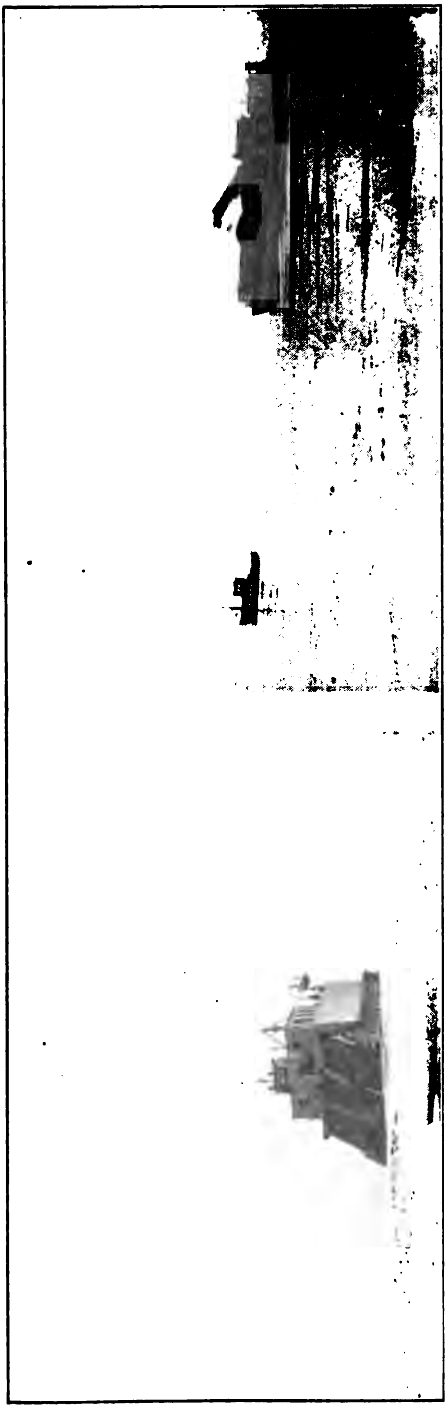


Fig. 38. Kelp cutter at work off Point Loma. Diamond Match Company's cutter and barge at work off Point Fermin. Photographs by H. B. Nidever.

Acknowledgments.

In the fulfillment of its duties the commission has had the help and cooperation of many different organizations. The United States Forest Service has greatly assisted in the administration of the fish and game laws and in the accumulation of data on the life histories of the different species of fish and game. The annual reports by chief forest deputies have been particularly valuable in furnishing information on the status of fish and game in the national forests. The Forest Service is in a position to render invaluable aid to the Fish and Game Commission by helping in the enforcement of fish and game laws, in the ridding of the forests of predatory animals, as well as in the propagation of fish. As an example, some twelve years ago, Supervisor Geo. W. Naylor of Inyo, then a forest ranger, carried fourteen rainbow trout over the almost impassable, bleak heights of the Sierras from the San Joaquin side, delivering safely in a camp bucket thirteen of them, which were put into Rae Lakes. These fish were the progenitors of one of the most wonderful rainbow trout centers known, which will furnish the eggs so badly needed to meet the enormous demands of the great southern California hatchery now being completed five and one-half hours below on Oak Creek. The University of California and Leland Stanford Junior University have continuously put at our disposal collections and laboratory equipment, have directed investigations and have helped to solve many puzzling questions. Acknowledgment is also made of the assistance of the United States Bureau of Fisheries, the United States Biological Survey, and of the fish and game commissions of other states, particularly that of Nevada, which has generously donated large numbers of brook trout. All of the railroad companies of the state have generously furnished free and reduced rate transportation of fish, attendants and special employees.

Statistical Reports.

Statistical reports of the several departments, including a record of fish-planting operations and a statement of the revenues and expenditures, are to be found in the appendix.

REPORT OF DEPARTMENT OF FISH CULTURE.

The Honorable Board of Fish and Game Commissioners.

GENTLEMEN: We have the honor to herewith present a report from the Fishcultural Department, for the years beginning July 1, 1914, and ending June 30, 1916—the third report since being placed in charge of fish culture.

Reports from all parts of the state indicate the beneficial results that have followed the systematic stocking of public waters under the supervision of men skilled in handling the fish. Notwithstanding the heavy drain on the streams and lakes by the ever increasing number of anglers, trout have appreciably increased in most of the streams where proper conditions have prevailed.

The ever increasing numbers of automobiles have carried the anglers on their journeys to all the accessible fishing waters in greater numbers each season. We find that a great many anglers who a few years ago, before the advent of the automobile, only fished one or two days in the season, now make frequent excursions to their favorite fishing grounds and take from the streams many times the number of fish that they did years ago. The increasing number of anglers, also the ease with which they can now reach the streams and the increasing zest for outdoor pleasures, such as angling, will soon make greater demands on our hatcheries, and to meet this demand some of our hatcheries will have to be enlarged and improved and new stations established. The Department of Hatcheries must meet the augmented demand for fish until such time when our annual limit of output has been reached, then a limit to the number of fish that each angler can take each season must be made by the legislature, either by limiting the number of days each week that persons can fish, or by making a shorter open season. With the contemplated improvements in our hatchery work, the time for this added legislation has not arrived and we hope it may be deferred for a number of years. California can safely say that, with only a few exceptions, fishing in most all of the streams is as good is it ever was; but with the extremely heavy fishing of the last two or three years we must keep close watch to see that our streams are not over-fished.

Administration Changes.

The commission decided during the fall of 1915 to have the office of the Department of Fishculture moved from Sisson Hatchery to San Francisco. This move necessitated a reorganization of the department. E. W. Hunt, who has been superintendent of the Tahoe hatcheries for twenty-five years, was made Field Agent of the Department of Fishculture, with the detail work of the hatcheries and the car messenger service under his supervision. A. E. Culver was placed in charge of screen surveys and A. E. Doney in charge of fishway surveys. As the superintendent of hatcheries had retained his appointment as superintendent of the Sisson Station since the date of his appointment as superintendent of hatcheries in November, 1911, a change in the superintendency of the Sisson Hatchery was necessary. A civil service examination was held in January, 1916, and G. H. Lambson, who had been with the Bureau of Fisheries as superintendent in the car messenger service and superintendent of Baird Hatchery, successfully passed it and was appointed by the commission as Superintendent of the Sisson Hatchery.

Stocking Lakes in the Inaccessible Mountain Regions of the State.

In the high Sierras and in the western part of Siskiyou and Trinity counties are hundreds of lakes of various sizes that are now barren of fish life. These can all be stocked at a small expense to the state and a greater area of fishing ground added to the state's wealth of waters in which game fishes will thrive.

Other improvements can be made by transplanting insects and other items of food from other waters to the streams and lakes that are lacking an abundance of proper food for trout. This work should be taken up at once and carried on systematically until all the streams and lakes that are deficient in proper food for the trout are in condition.

Fish Propagation.

Eight hatcheries and six egg collecting stations have been operated to their full capacity during the last two seasons and it will be necessary to enlarge our present stations and establish new ones to meet the demand for trout fry as well as to do the salmon work properly.

Our hatcheries should all be equipped with enough troughs and rearing tanks to rear the fry to a fair size before shipping. The relative advantages of planting fry or fingerlings in our streams and lakes is a question that is being brought up continually and in which there is a great difference in opinion. In our judgment both systems have their advantages, depending on the size of the stream, altitude, amount of natural food, variety of the fish and the season of the year. By studying these conditions and using good judgment and care in the distribution of either fry or fingerlings good results can be obtained.

The best results are obtained in planting fry in the smaller tributary streams in spring and summer when there is an abundance of food provided naturally to support fry at that age. In southern California, in the lower altitudes, conditions appear to be somewhat different and a larger fish planted in the fall seems to do the best; but in the mountainous parts of southern California, spring planting has given excellent results.

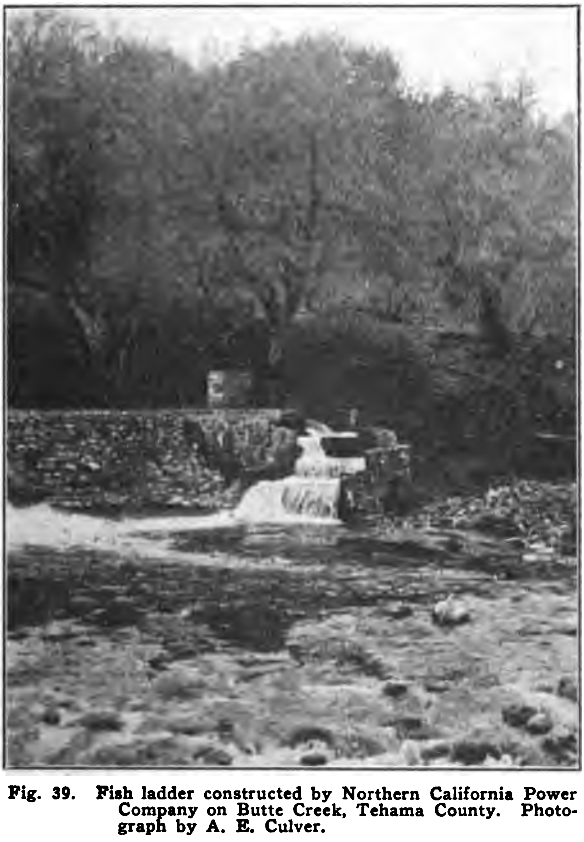


Fig. 39. Fish ladder constructed by Northern California Power Company on Butte Creek, Tehama County. Photograph by A. E. Culver.

The planting of fingerlings has an advantage over fry when the fish are planted in large streams or rivers where there are no spawning beds or natural feeding grounds for the fry, such as exist in the smaller streams. These places are not very numerous, as in most river systems suitable tributary streams can be found in which to deposit the fry, and as they develop they work slowly down the streams into the larger bodies of water, following their natural inclinations.

Some enthusiasts would have us rear the fish until they are almost large enough to catch, before planting. This would be beyond the finances of the commission to carry out, and furthermore a fish artificially fed too long is not a good rustler when liberated and is apt to suffer considerably before getting accustomed to natural conditions. Some of the best results have been obtained where fry from two to three months old have been planted. Absolute proof of this is at hand where new species have been introduced in the streams. Fry, if in perfect condition, free of bacterial disease, carefully reared by a skilled fishculturist and planted in the small tributary streams, are sure to give good results. We have been a close observer of these conditions for over thirty years in California and feel that we are pursuing the right policy in planting the majority of the fry from our hatcheries when they are from two to four months old.

A number of writers who are not fishculturists have advocated the building of ponds and nurseries along the banks of the different lakes and streams in the state to rear the fry until they are fingerlings before they are released into the streams. This might do in a few localities, but when we figure on rearing 16,000,000 or 18,000,000 of fry on thousands of miles of streams the proposition is impracticable, even if the state had money enough to build the ponds and to pay men to care for the fish. To turn the fry over to inexperienced persons, even where they go to the expense of building the ponds, is a poor policy and one in which the public as a rule will not benefit. The experience of fishculturists who are working for the public good must be considered in preference to enthusiasts and theorists. Fishculture is a well demonstrated practical proposition and the experience of men skilled in this work must be considered if the public is to get the benefit of the money invested.

Fishways and Screens.

The work of installing screens in the ditches and canals of this state and of constructing fishways over dams and obstructions has progressed entirely satisfactorily during the last two years. A. E. Culver as screen surveyor and A. E. Doney, fishway surveyor, have been untiring in their efforts to enforce the law and conserve the fish.

One hundred seventy-eight surveys of ladders over dams have been made. As a result of these surveys eighty-six obstructions have been removed or fishways installed in order that fish might have a free passageway.

Nearly six hundred screens have been ordered installed and 377 have been reported as completed. The wide extent of operations is indicated by the fact that screen surveys have been made in thirty-five different counties during the last two years.

Some new and difficult problems have presented themselves in both the screen and fishway work, but good progress has been made over the entire state, with the exception of the San Joaquin Valley, where some of the large canal owners are resisting our efforts to install screens in their canals. These owners object on the grounds that the screens are impractical and will impede the flow of water. This is a flimsy excuse, as experience has proved that the largest canals can be screened and the flow of water be undiminished, if they are properly cleaned. The parallel bar screen can be made to do good work and not cause any trouble under normal conditions. During extremely high water when floods prevail in the streams caused by melting snow or storms in the mountains carrying down an excess of floating matter, the screens can be removed for a short time to allow the debris to pass. When conditions are normal the screens can be replaced. It would be folly to say that the large canals can not be screened. If we can not have them screened all the time, we should make an effort to save as many fish as possible by keeping the screens in place when it can be done without damage to the flow of water in the canals.

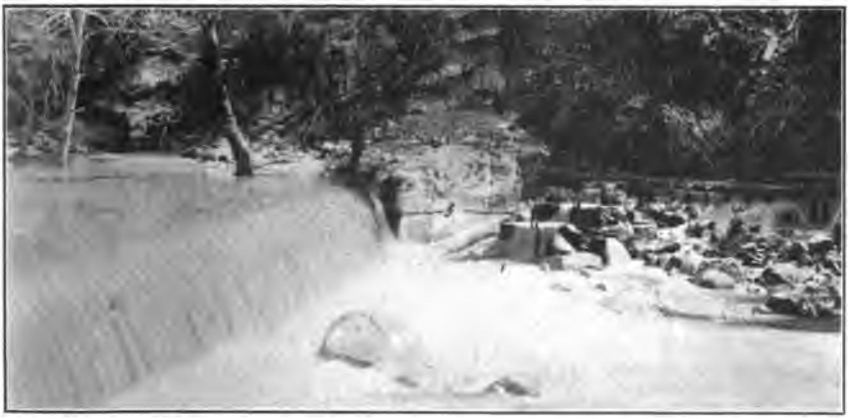


Fig. 40. Fishway at Bonally Dam, on the Salmon River, Siskiyou County. Photograph by I. Eldredge.

A screen is being installed in the Pacific Light and Power Company's canal at Borel in Kern County that works in sections on a revolving shaft. It can be cleaned at any time by turning a crank that turns the screen sections edgewise with the current and allows the debris to float down the stream. As soon as the debris is washed off, the screen is turned back in place. Some such device can be arranged if the parallel bar screens are considered too hard to clean. Any of the types of screens that we have recommended will work, if they are cleaned. We find that the trouble appears to be that some of the owners of the larger canals do not want to pay for the extra help required to clean the screens.

The commission plans to rigidly enforce the law regarding the screening of ditches and no excuses will be entertained. Taking it as a

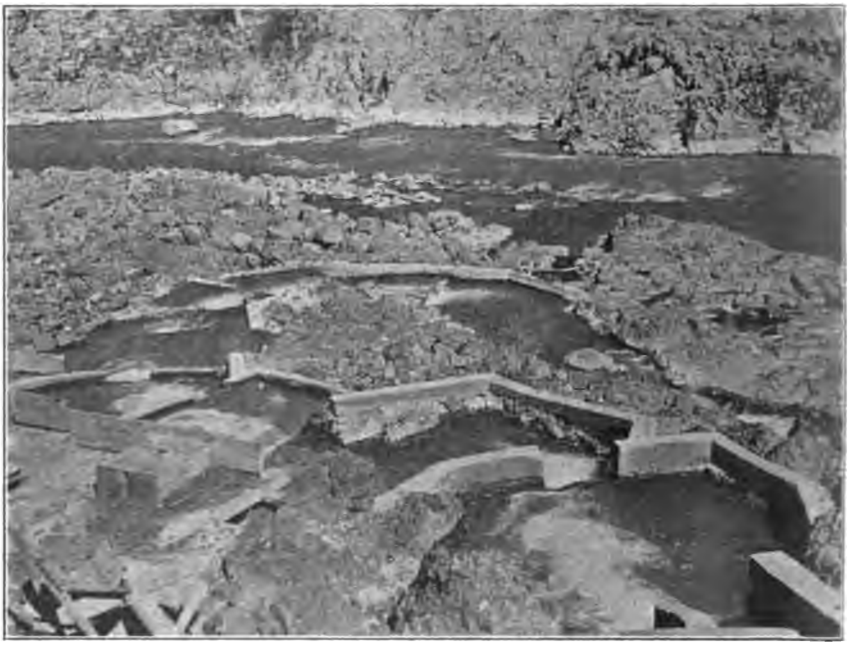


Fig. 41. Snow Mountain Dam Fishway, on south fork of Eel River, Mendocino County. Photograph by H. C. Bryant.

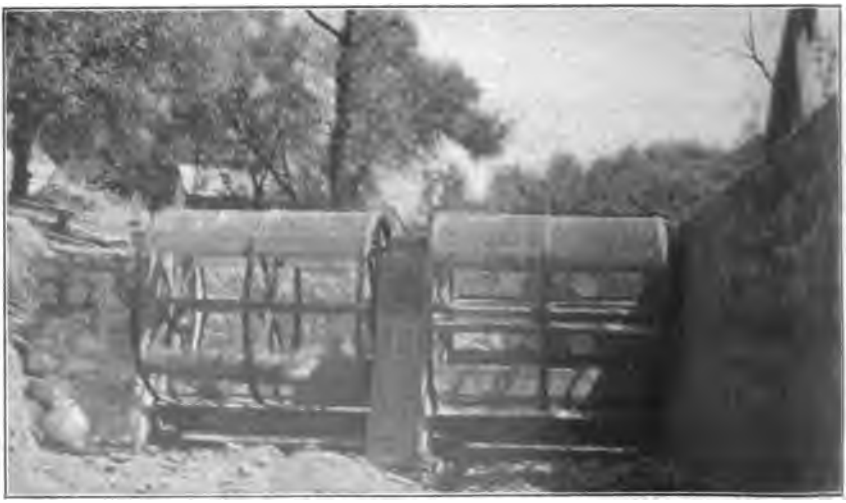


Fig. 42. Screen of Northern California Power Company at Inskips, Tehama County. Photograph by A. E. Culver.

whole, the screen work has been very successful, considering the number of ditches and canals that we have had to handle and the great difference in conditions that prevail in different parts of the state.

Pollution of Streams.

The pollution of the inland streams by sawdust, slimes from the mines, and other waste matter polluting the streams, has been given attention whenever reports have been received. We have not had any serious trouble with any of the cases handled, although numerous complaints regarding stream pollution by mining operations are received. Many reports come from the old mining districts where the fish were destroyed in the early history of mining operations in this state and no further damage can be done. Wherever new plants are reported we insist that all the slimes be impounded in storage reservoirs or vats until the heavier material has settled.

The flotation process of working ores has given us considerable trouble, as the pulp is so fine that it is very difficult to settle, remaining in suspension in the water for weeks. The damage that it does to the fish is very slight if the plants are not too large. We are giving this, one of the latest processes of handling ores, special study, for this method will probably be used extensively in nearly all mining operations in the future.

Propagation of Shad.

Early in the season of 1916 the question of propagating shad was taken up by the department. The heavy fishing for shad in the bays and in the Sacramento and San Joaquin rivers for the last few years had caused noticeable falling off in the numbers of these fish and to keep the supply up it was deemed necessary to resort to artificial propagation.

About the same time we received a request from the Massachusetts and Connecticut Fish and Game commissions requesting the California commission to collect shad eggs from California waters and ship them to their hatcheries, as they were desirous of restocking the depleted waters of the Eastern states with shad. Shad were introduced into California by the California Fish Commission in 1871. They increased rapidly until a few years ago the Sacramento and San Joaquin rivers were fairly alive with them in the spring and summer when the run of shad was at its height.

The excessive fishing and pollution of the Eastern rivers has caused the shad to become very scarce and it was the desire of the Massachusetts and Connecticut commissions to restock their waters. We agreed to collect the shad eggs for the two commissions, as it was considered an opportune time to carry on experiments to locate the spawning places of shad as well as to make experiments to determine whether shad culture could be carried on successfully in California, and to determine whether the process of fertilizing the eggs and propagating the fry could be improved upon.

Consequently, the commission decided to operate a shad hatchery on a small scale during 1916 to carry out the experiments and to gather data in preparation for more extensive operations next season. When operations were begun in May, it was thought that all the eggs necessary for the shipments East, as well as for our experiments, could be collected by the latter part of May or early in June, but the season proved to be unfavorable and the work dragged along into July without sufficient eggs being obtained at one time to make a shipment East.

Fishing began on June 3d with our crews at Yuba City. The run was poor all through the season in the upper reaches of the rivers; nowhere near its size in former years. The light run of shad in the upper river was due to the very cold spring, cold water, and later to the high, roily water caused by the melting snow in the higher altitudes. During the season 1,421,000 shad eggs were collected and 872,000 fry hatched and successfully released in the Feather River. This work was under the immediate supervision of Superintendent G. H. Lambson of the Sisson Hatchery. Data regarding the movements of the shad that will be valuable in future shad work have been compiled as well as the results of the experiments in hatching the shad fry. The eggs were successfully hatched and the fry kept free from bacteria and fungus.

This coming season the shad work should be taken up in earnest and several million shad as well as striped bass should be hatched and distributed in the Sacramento River to keep up the supply of these valuable fish. Shorter seasons for catching these fish should be established by the legislature.

Sisson Hatchery.

Sisson Hatchery has been operated on the same general plan as in former years. The fry are held until they are from three to eight months old and are then shipped to all points in California where the local hatcheries can not supply the number and variety of fish desired.

As the result of a cooperative arrangement with the United States Bureau of Fisheries the commission received 34,300,000 quinnat and 1,900,000 silver salmon eggs in 1914–15 and 18,400,000 quinnat salmon eggs in 1915–16. These eggs were hatched and the fry carefully reared and fed until the majority of them were two to three months old; then they were distributed in the upper reaches of the Sacramento River and tributary streams near Sisson, and in the Klamath River. These fry were deposited in natural feeding grounds under conditions as nearly perfect as it was possible to find. Several million of the fry are held each season in the large ponds at Sisson Station, where they are carefully looked after and systematically fed until they are about eight months old; then they are distributed in the Klamath and Sacramento rivers early in the fall. A record of the numbers and place of distribution of these plants will be found in the statistical report of distribution from Sisson Hatchery.

During the fall of 1914, the commission decided to construct another hatchery building on the grounds of the Sisson Station to enable them to hold the fry so they could attain a better growth by giving them less crowding and more trough space. Accordingly, plans were made by the Department of Hatcheries, which the board approved. The plans called for a building 190 feet long and 42 feet wide, to contain 148 hatching troughs. As the expense of constructing this hatchery was over one thousand dollars, we had to have the work carried on under the supervision of the State Department of Engineering. This was to comply with a recently enacted law. To allow us to carry out our plans of constructing this building, W. F. McClure, State Engineer, kindly appointed the superintendent of hatcheries a deputy state engineer to construct the building. The work was rushed and the building completed in time to receive part of the salmon eggs from the Bureau of Fisheries' stations during the latter part of the hatch of salmon eggs for the season of 1914 (see Fig. 44).

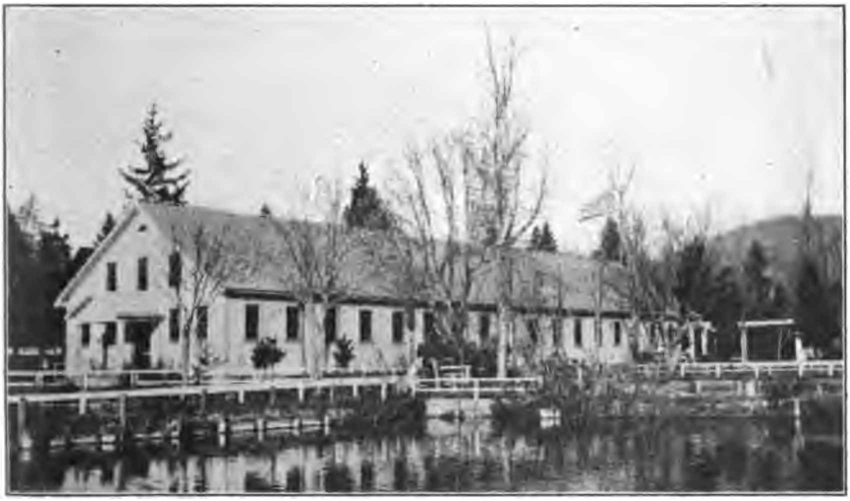


Fig. 43. Hatchery "A" at Sisson. Photograph by G. R. Field.

With its five hatchery buildings and auxiliary battery, containing in all over 500 troughs, and its 52 breeding ponds, the Sisson Station must be considered one of the largest hatcheries in the world. The station now has a capacity of fifty million trout and salmon fry per season.

One new pond was rented from Mr. Rupp, during the winter of 1915–16. The lease on the large pond, known as Sisson Lake, expired in the fall of 1915 and we were not able to have it renewed, so Mr. Rupp, who owns one of the large ponds leased by the commission for salmon culture, agreed to construct another pond and lease it to the commission for the rearing of fish. The pond was completed early last winter and stocked with salmon, where they are thriving. These fish will be distributed during the fall of 1916. We would respectfully recommend that the commission take measures to purchase these leased ponds or acquire more land near Sisson Hatchery to construct large ponds such as these, of one acre or more in area, for the rearing of salmon fry. The more experience we have in rearing salmon fry in ponds, the more we are convinced that the best results in salmon culture are to be obtained by rearing several million fry each season on the upper reaches of the Sacramento River where the water is pure and cold and where the fry can be liberated in the fall out of the reach of the predatory fishes that infest the Sacramento River after it enters the valley proper.

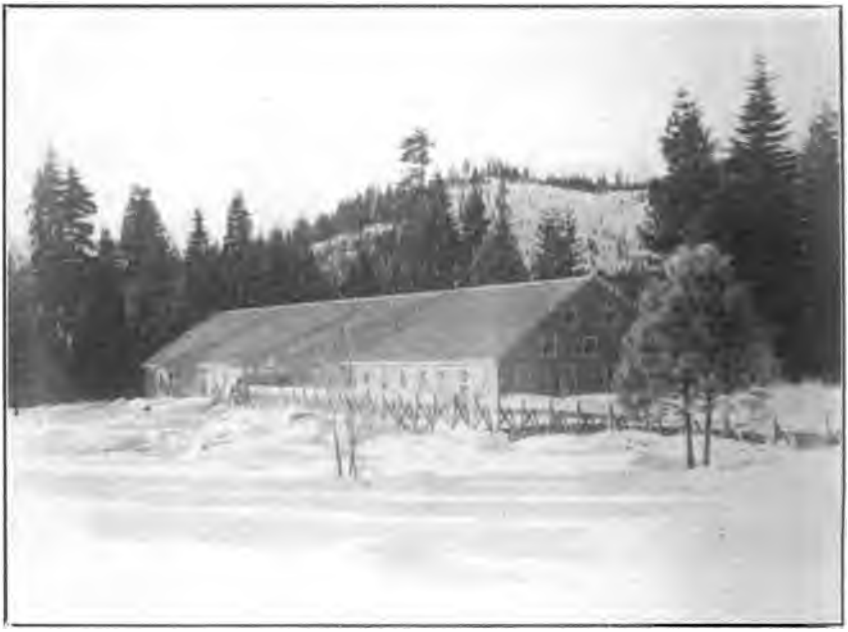


Fig. 44. Hatchery "E" at Sisson Station, completed January 1, 1915. This is the fifth large hatchery building erected at Sisson.

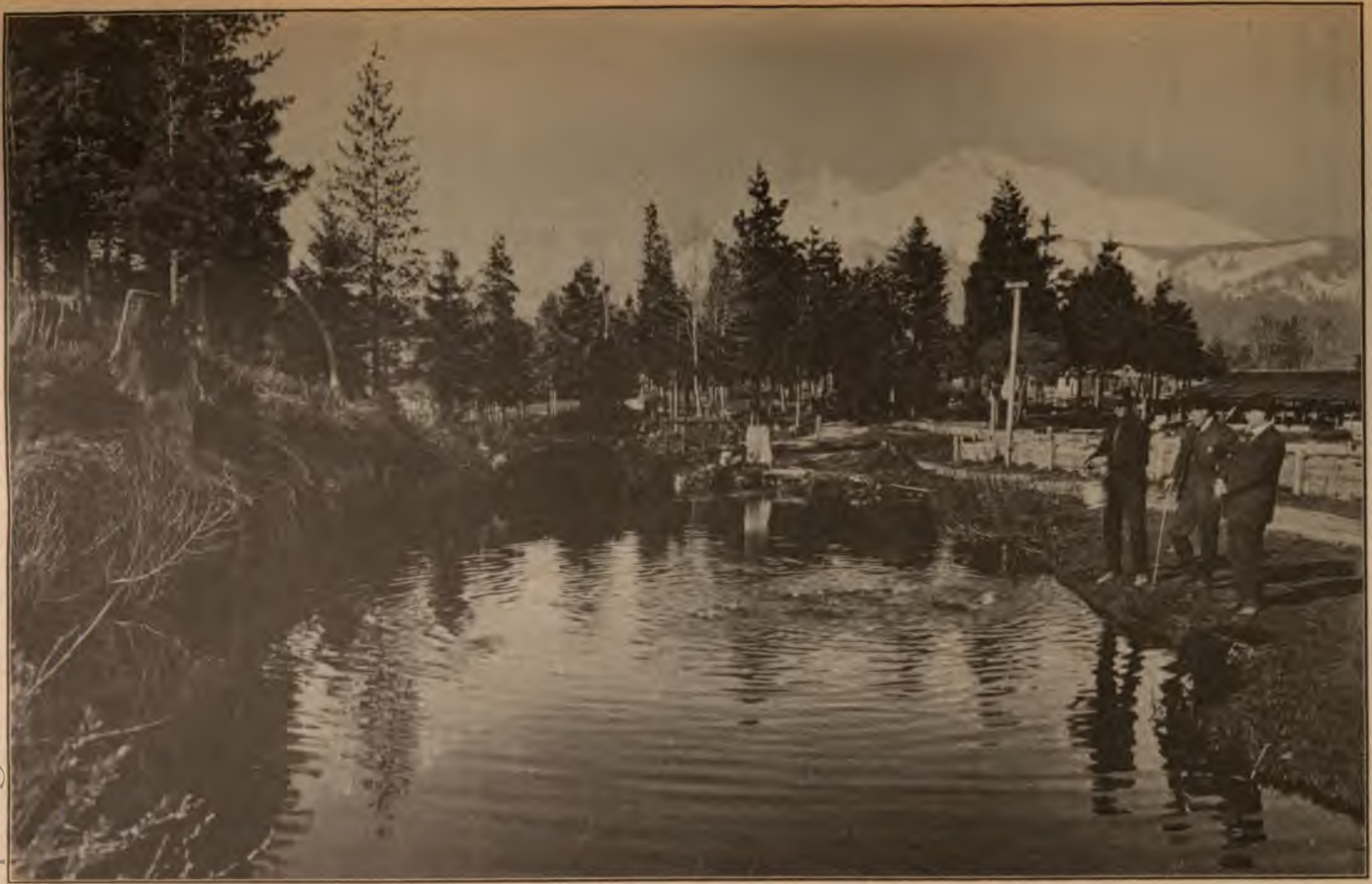


Fig. 45. Feeding fish in one of the ponds at Sisson Station. Photograph by Union Lithograph Company.

The increased number of trout fry hatched at Sisson Station during the season of 1915, 11,372,000, caused the Hatchery Department to design a more extensive plan of distribution. Accordingly, it was decided to operate two distribution cars. Arrangements were made with the Southern Pacific Company to rent a baggage car and have it equipped with a gasoline engine and an aerating system. This car was equipped at the Southern Pacific Company shops in Sacramento and put into the service July 1, 1915 (see Fig. 20). During the distribution season of 1916, two distribution cars were used from Sisson station.

The total number of fry distributed from Sisson Hatchery during the season of 1916 was 9,597,000, consisting of the following varieties: rainbow, eastern brook, Loch Leven, black-spotted, steelhead and German brown trout. There will be approximately 18,000,000 quinnat salmon distributed from Sisson Hatchery this season.

The pond system is being maintained and improved. We find that it is necessary to keep a good stock of brood fish in the ponds to give us a supply of eggs that we can always depend upon.

The number of fish on hand in the ponds at Sisson Hatchery July 1, 1916, was as follows:

	Adults	Two years old	One year old	Fry	Total
Trout—					
Rainbow	9,100	3,900	25,000	40,000	78,000
Eastern brook	8,600	10,000		60,000	78,600
Loch Leven	12,650	5,100	30,000	20,000	67,750
German brown				80,000	80,000
Steelhead			8,000		8,000
Dolly Varden	4				4
Miscellaneous—					
Landlocked salmon			450		450
Grayling	400				400
Total					313,204

Tahoe Hatcheries.

The Tahoe Hatcheries have been operated to their full capacity during the last two seasons. Mr. Hunt has had immediate supervision of these stations, as in former years. The output of fry will be shown in the statistical tables for these hatcheries.

We again respectfully recommend that the much needed improvements at Tahoe station be carried out in the near future. The Tahoe Hatchery should be enlarged so as to give it a larger trough capacity and Tallac Hatchery should be removed at the earliest possible date from Taylor Creek to Tallac Creek or to any other site where the water is suitable for rearing fish. The water in Taylor Creek is not fit for hatchery purposes. Taylor Creek rises in Fallen Leaf Lake and its water, during the warm weather, becomes impure from the organic matter in the lake. The fish become affected and it is necessary to plant them early in the season before they have made their proper growth. Negotiations are under way at present to acquire a new site on a nearby stream where the fry can be held until later in the fall, before distributing them. A battery of tanks is being planned in which to rear the fry to a much larger size than formerly, before planting them.

We repeat the recommendation made in the last biennial report regarding increased efforts to propagate the large lake trout (*Salmo tahoensis*), by trapping the upper Truckee River and Blackwood Creek for their eggs. This valuable fish should be increased in numbers by artificial propagation.

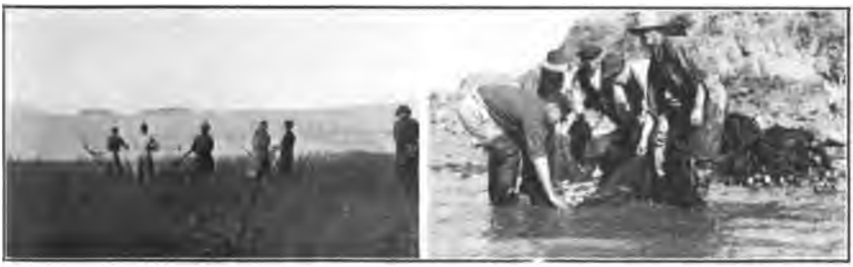


Fig. 46. Seining for striped bass to be transplanted to barren waters. Photographs by H. H. Hunt.

New varieties of game trout should be added to the native species of trout in Lake Tahoe, thus affording a fish for the angler as well as for the commercial fisherman. The Department of Fishculture is making arrangements to carry out these plans.

Considerable complaint has been made regarding the leeches affecting the trout in the streams entering into the lake, and the commission has been requested to remove the logs and brush from the creeks as the erroneous impression prevails that the logs are infested with the leeches and if the logs were removed the fish would not be affected. The common leech occurs in many fresh water streams and lakes and inhabits the gravel and rocks in the beds of the streams. It may be found on the logs and pieces of wood in the creeks, but only incidentally, as its native habitat is in the bottom of the streams among the gravel and rocks, and under the bank where it finds lodgment. It is parasitic on fishes, and if all the logs and wood in the streams entering Lake Tahoe were removed, the leeches would be present just the same. As soon as the fish enter the creeks from the deep water of the lake and come into the shallow water, the leeches attach themselves to the gills and mouths of the fish and in a short time the fish become greatly emaciated from loss of blood. When the leeches are gorged they drop off the fish and bury in the gravel at the bottom of the creeks. Where the leeches are numerous and a large number attach themselves to a trout the loss of blood is great and the fish often dies; but the number actually killed is not as great as some persons imagine. The trout are naturally weak during the spawning season and some of them perish from their efforts in spawning as well as from the leeches. The trout artificially spawned at the egg collecting stations escape many of the dangers incidental to spawning in the creeks, such as the ravages of leeches and the grab hooks and spears of poachers.

Brookdale Hatchery.

Brookdale Hatchery was operated during the seasons of 1915 and 1916 under a lease procured from Santa Cruz County. The eggs were collected at Swanton from Scott Creek. Under the conditions of the lease the county of Santa Cruz receives annually 500,000 steelhead trout fry to be distributed entirely in the public waters and the remainder of the eggs and fry are disposed of at the pleasure of the commission. The last two seasons' operations were productive of good results. In the season of 1915, there were 1,070,000 fry reared and distributed from Brookdale Hatchery and 2,287,000 eyed eggs were shipped to other stations to be reared and distributed in other sections of the state. There were 678,000 eyed eggs shipped from Brookdale Hatchery to Sisson Hatchery, and 877,000 fry distributed in the waters of Santa Clara, Santa Cruz and Monterey counties during the season of 1916. The distribution of fry from Brookdale Hatchery during the season of 1915 will be found in the statistical table of this report (see appendix).

Ukiah Hatchery.

Ukiah Hatchery was run as usual during the seasons of 1915 and 1916. Steelhead eggs were shipped to this station from the Snow Mountain egg collecting station. The fry were given a wide distribution in Sonoma and Mendocino counties. During the season of 1916, while removing the Price Creek Hatchery to its new location on Fort Seward Creek, 1,000,000 quinnat salmon eggs were hatched at Ukiah Hatchery for distribution in Mad and Eel rivers.

Fort Seward Hatchery.

Owing to the undesirable location of the Price Creek Hatchery, it was decided to remove it to a more favorable site. Price Creek Hatchery was located on Price Creek, one-half mile from its junction with Eel River. The creek has its source in the hills near the mouth of Eel River. The country through which it flows is a loose, friable and disorganized formation that is constantly sliding and washing away. During the winter months the creek was so full of sediment that it was only with the greatest skill and care that fish could be reared at all. In the spring the water dried up rapidly and became very warm so that it was impossible to hold the fry later than June. The commission decided to remove the hatchery to a more favorable location. The Department of Fish-culture was instructed to select a suitable site and to move the station. After a careful survey of the streams on the line of the Northwestern Pacific Railroad we selected Fort Seward Creek, a cold, clear stream flowing into Eel River about four and one-half miles above old Fort Seward, Humboldt County. The commission purchased forty acres of land near the mouth of the creek and selected a site for the hatchery about one-quarter of a mile from the Northwestern Pacific Railroad.

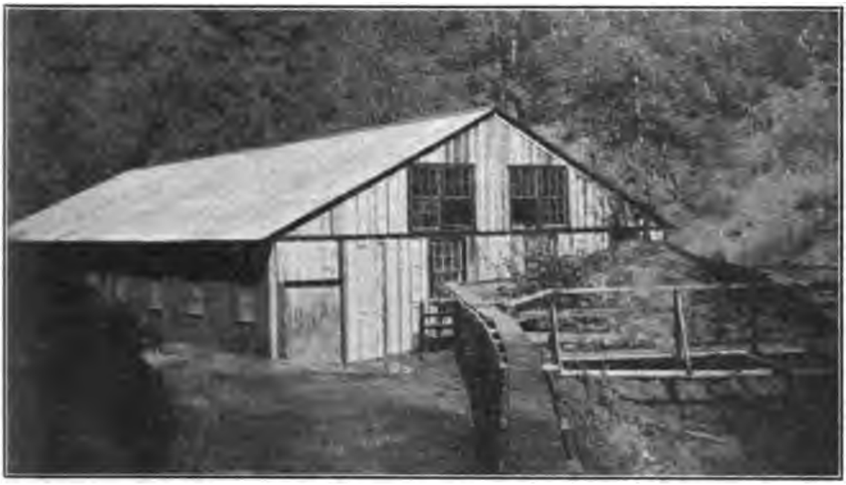


Fig. 47. New hatchery at Fort Seward, Humboldt County. Photograph by Silas Campbell.

Early in 1916, the work of moving the building, tanks, flumes, etc., from Price Creek to the new site on Fort Seward Creek was begun, and in due time it was completed and ready for the spring hatch of trout eggs (see Fig. 47). W. O. Fassett, who has been superintendent of the Price Creek Hatchery for a number of years past, was placed in charge of the new station and he has successfully carried on the work as in former years. A cottage for the superintendent and a cabin for the men was erected and finished in a rough way until more comfortable quarters could be arranged.

The building and troughs were ready for the steelhead eggs collected at the Snow Mountain egg collecting station during the spring. One million steelhead eggs were shipped to the station and the resulting fry are to be distributed in the streams of Mendocino and Humboldt counties. Besides the steelhead eggs, 100,000 rainbow trout eggs from the Lake Almanor station and 140,000 black-spotted trout eggs from the

Tahoe hatcheries were shipped to the new station for distribution in the tributaries of Mad River and Eel River.

This hatchery can be used for salmon culture as well as for trout work. Plans are being made to construct a rack across Eel River for the purpose of collecting salmon eggs for the hatchery at Fort Seward Creek. This will enable us to stock Eel River, Mad River, Elk River and several large streams on the Humboldt County coast with salmon fry. Formerly the salmon eggs for this section were shipped from the Sacramento River stations. If we are successful with this undertaking, an ample supply of eggs can be collected from Eel River without taking any from other hatcheries. Fort Seward Hatchery promises to be one of the most important stations of the commission.

Snow Mountain Station.

Early in the season of 1915, the commission secured a lease on the Cape Horn Dam from the Snow Mountain Water and Power Company for one year with the option of an additional five years. This lease gives the commission the use of the grounds and buildings as well as the privilege of constructing tanks, traps, etc., on the land described in the lease. Snow Mountain Station is one of the best steelhead egg collecting stations on the coast. The dam that makes it possible to collect the fish is located on the south fork of Eel River about twenty-five miles from Ukiah, Mendocino County. All the steelhead trout that ascend this branch of Eel River are easily trapped in the fishway over the dam. Last spring a series of tanks were arranged to hold the fish near the hatchery building. This tank system was arranged under the supervision of F. A. Shebley, a skilled fishculturist, who has made the work of holding large fish a specialty. The tanks and traps are so arranged that a portion of the mature steelhead trout are allowed to ascend the river above the dam to deposit their spawn and thus keep up the supply of fish in the extreme upper reaches of the streams tributary to this branch of Eel River.

Considerable complaint has been made by local residents regarding our operations at Snow Mountain Station. The claim has been made that not enough fish were allowed to pass the dam to keep the upper reaches of the river stocked. A hearing was held at Upper Lake, Lake County, on April 2d, by representatives of the commission. The meeting was well attended, about sixty persons being present. It was decided, after the hearing, to arrange a flume from a point near the tank house, where all the fish not needed for spawning purposes could be separated from the ripe fish and allowed to pass above the trap so they could ascend the river to the spawning grounds on the upper reaches of the river. This will be of considerable benefit if the fish are allowed to ascend the stream unmolested. There are a great many of these fish taken by the local residents before they arrive at the spawning grounds, in spite of the vigilance of the deputies. The idea prevails among some of these people that these large trout are salmon and that they will die as soon as they spawn. The steelhead is a true trout and not a salmon and will spawn several times if not taken or killed. A sufficient number of these fish will be allowed to ascend the river above the dam each season to keep the upper part of the river stocked by natural spawning.

Wawona Hatchery.

Wawona Hatchery has not been operated for the last two seasons, and fish were shipped from Sisson to supply the region covered by this hatchery. The station was operated during the season of 1914, and the distribution of black-spotted and large lake trout fry in the counties of Mariposa and Madera will be found in the statistical report (see appendix). This region will be supplied from the Inyo Hatchery next season, and we would, therefore, recommend that the Wawona Hatchery be abandoned.

Bear Valley Hatchery.

During the fall of 1914, San Bernardino County established a small hatchery on one of the tributary streams flowing into Bear Valley Lake. The object of this hatchery was to propagate rainbow trout from the fish in Bear Valley Lake. Bear Valley Lake, locally known as Big Bear Lake, is a body of water seven miles long and one and a half miles wide at its widest part. It is an artificial storage lake lying in the heart of the San Bernardino mountains about thirty miles from San Bernardino at an elevation of about 7000 feet.

This lake was stocked a number of years ago with rainbow fry from Sisson Hatchery and these fish have thrived remarkably well. The commission operated this hatchery during the seasons of 1915 and 1916. The first operations resulted in an output of 413,000 fry, all of which were planted in Big Bear Lake and in the streams of San Bernardino County.

Our crew of spawn-takers arrived at Big Bear Lake on March 16, 1916, prepared to exceed last season's take of eggs. Torrential rains during the winter had caused the mouths of the creeks to be filled with debris, which caused the fish to be delayed in entering the streams and the female trout became overripe before the first fish were spawned. Consequently the percentage of fertilization was not as good as expected. The rising surface of the lake, caused by the dam being raised, made a change in the shore line and the mouths of the creeks being closed in the beginning of the season by detritus carried down by the winter storms, embarrassed the operations to a considerable extent. Our men had to remove the sand bars and other debris that had been deposited at the mouths of the creeks, before the fish could enter. The fish being retarded, the eggs were affected by over-retention, and a high percentage of fertilization could not be obtained. The eggs that were fertilized hatched well and produced a lot of strong, healthy fry. The result of the season's operations was 750,000 fry, which are being distributed in Big Bear Lake and the streams of San Bernardino County. The county game warden, Mr. Malone, will assist in the work of distribution. In the table of distribution will be found the list of waters stocked with trout fry from this station during the season of 1915.

It is planned to get everything in readiness this coming fall so that there will not be any delay this coming season in collecting the eggs from Big Bear Lake. This will prove to be a valuable egg collecting station, as it will supply the streams of San Bernardino County that are situated far from the railroad in the heart of the San Bernardino mountain range.

Almanor Hatchery.

In an effort to increase the take of rainbow trout eggs during 1916, plans were made to establish an egg collecting station at Lake Almanor, Plumas County. The take of rainbow eggs at the Bogus and Camp Creek stations, on the Klamath River, was light, as this proved to be an off season on the Klamath. The run of fish in the tributaries of the Klamath River is very irregular, as our records for twenty-five years past will show. Whenever weather conditions are not propitious the fish do not run regularly and straggle along for months. Consequently the take of eggs is always light during such seasons. Early in 1916 we were satisfied that the take of eggs at these stations would be light, so we planned accordingly to make an effort to collect eggs elsewhere. Having heard that there was a considerable number of rainbow trout each spring in the North Fork of the Feather River at the outlet to Lake Almanor, Mr. Hunt, our Field Agent, was instructed to investigate and report on the chances of collecting eggs at this place. He reported the condition was favorable for a good take of eggs.

We secured permission from the Great Western Power Company to operate on their property at the Lake Almanor Dam. The company also kindly gave us the use of their buildings in which to establish a temporary hatchery. The crew worked under difficulties. The snow was deep and it was difficult to get the supplies and equipment to the station; but in spite of the difficulties, we collected 1,635,000 eggs and successfully held them until they were ready for shipment. Fort Seward Hatchery received 100,000 eggs, 240,000 were shipped to Tahoe Hatchery, 840,000 to Sisson Hatchery, 100,000 to the Nevada State

Fish Commission, and the remainder were hatched and distributed in the local streams and in Lake Almanor.

Reports were received that a good run of rainbow trout ascended Rice Creek, a tributary of the North Fork of the Feather River above Lake Almanor. After making an examination of the stream and gathering data from the local residents we have decided to establish an egg station there this fall, so as to have it ready for next spring's work.

We have located a site for a small hatchery and egg station at Domingo Springs. Domingo Springs is on the main road leading from Chester to Red Bluff, and is one-half mile from Rice Creek Falls, where we have selected a site for a trap and retaining tanks for our egg collecting station. The water from Domingo Springs gushes from the lava rocks at the foot of a cliff near the road. There is about 300 inches of water in the springs, an ample supply for a fair-sized hatchery, should it ever be necessary to operate one in that section on a large scale. We have a permit from the United States Forestry Department for the hatchery site at Domingo Springs, as well as for the trap and tank site on Rice Creek.

Next season we will operate a trap in Rice Creek to determine the number of eggs that can be collected and if our efforts are successful we will make this a permanent egg collecting station and establish a small hatchery at Domingo Springs to supply the district west and north from Lake Almanor, as well as to keep up the supply of trout in the lake.

Burney Creek Station.

In the spring of 1915 we secured a lease on a piece of land at the mouth of Burney Creek, a tributary of Pit River, Shasta County, for the purpose of collecting rainbow trout eggs. A rack was placed across the stream and the necessary live cars and pens were made to hold the fish that we expected would enter the creek. A tent and a few troughs under it, with our hatching equipment, was set up and operations were begun with the intention of collecting and eyeing eggs preparatory to shipment to Sisson.

It was originally planned to eye the eggs and hatch them in the old Hat Creek Hatchery, seven miles from Burney Creek, if a sufficient number were taken; but early in May an eruption of Mount Lassen sent a tremendous flood of mud, water and sand down the Hat Creek Valley, destroying all the fish in the stream from its source to its confluence with the Pit River. This was one of the most serious destructions of fish life in recent years in California. Hat Creek rises in the southeastern part of Shasta County in a lake at the foot of Mount Lassen, at an altitude of 7300 feet above sea level. It flows northerly into the Pit River, two miles northwest of Carbon, where the old Hat Creek Hatchery was located. It is thirty-eight miles in length. Its principal tributary is Rising River, a short stream arising from large springs in the lava. It is only two miles in length, but has an average flow of 380 second feet of water. Hat Creek, before its confluence with Rising River at the town of Cassell, has an average flow of about 100 second feet during the summer months. Hat Creek and its tributary. Rising River, were noted for the excellence of their rainbow trout. After the flood of mud and sand from Mount Lassen, the only survivors in the valley were those that were in Rising River. The water was muddy all during the season of 1915 and during the last year continued so muddy that it was not considered practical to restock the stream. It will probably be several years before fish will again thrive in Hat Creek, as the shifting sand deposited by the volcano destroys all the insect life in the stream, as well as making it uninhabitable for trout.

The fish enter Burney Creek late in the summer, but the run is a protracted one, lasting from April to August. The fish are late in developing and if the fry were reared in a higher altitude and the progeny spawned later each season, a fall spawning rainbow trout could be developed. This would probably have some advantages over a spring spawning fish, as such trout would be in fine condition for the anglers when the fishing season opens in the spring.

The eggs collected during the season were eyed at Burney Creek Station, and 200,000 were shipped to Sisson Hatchery, from which station they were distributed to different sections of the state. Owing to heavy operations at other stations, Burney Creek was not operated during the season of 1916.

A Southern California Hatchery.

During the summer of 1915 the commission again took up the matter of constructing a hatchery for southern California. A hatchery for southern California has been advocated for several years, but to find a location where the water, climatic conditions and transportation facilities were suitable for a hatchery large enough to supply the region south of the Tehachapi and the country lying to the east of the San Joaquin Valley, was not easy. The hatchery department had made investigations and gathered data on the best streams in the country south of the Tehachapi, but none of them was found to meet all the requirements necessary for the proposed hatchery. Some of the sites were inaccessible, others too far from railroad transportation, but the great majority of them, although located where the water was pure and in sufficient quantity, were undesirable because the water was used for domestic purposes. In October, 1915, Commissioner M. J. Connell notified the Department of Hatcheries that he had found an ideal stream of water on which to locate a hatchery such as the board had been looking for. He called our attention to Oak Creek, Inyo County, and ordered the Superintendent of Hatcheries to make a report on the stream.

Oak Creek was found to be the largest and most important stream that enters the Owens River Valley in the region of Independence. The reason for selecting the region near Independence was to enable the commission to secure an ample supply of eggs near the hatchery. Mr. Connell had found that a series of lakes, situated in the high Sierra region west of Independence, were teeming with rainbow trout of an excellent quality and from which millions of eggs could be procured. These lakes are in a glacial basin and are known as the Rae Lakes.

Oak Creek enters the valley about five miles north of the town of Independence. It has an abundance of pure, cold water. The maximum flow (which is in June) varies from 20 second-feet to 200 second-feet, depending on the depth of the snow that falls on the upper reaches of the stream, and the rapidity with which it melts during the first warm spell in the early summer. The average minimum flow for the last six years was 8 second-feet, and this late in the fall. This stream will supply a hatchery station with a capacity of from 10,000,000 to 12,000,000 fry. As the largest number of fish are handled during the maximum flow, this creek supplies almost an unlimited flow of water for hatchery purposes. The source of Oak Creek is in the precipitous range of mountains on the west side of the valley at an altitude of about 10,000 feet. Its descent is very rapid until it reaches the floor of the valley. From its source on Diamond Peak and Black Mountain, the main stream, or the North Fork, is 8 miles long to its junction with the South Fork, which rises on the southeastern slope of Black Mountain and is also about 8 miles in length. The South Fork falls from its highest source to its junction with the North Fork 7100 feet in a distance of 8 miles. The North Fork falls 8700 feet in its course from the source to its junction. The confluence of the two forks of Oak Creek is about 1½ miles from the base of the range in the Owens River Valley. The land slopes gently toward the plain on a gradient of about 4 per cent.

About one-quarter of a mile below the junction of the two forks of the stream, the commission secured forty acres of land on which to establish a hatchery. On this site a large hatchery is now being erected. The building now under construction is 192½ by 45 feet, constructed of natural stone, gabro and granite, found on the floor of the valley (see

Fig. 31). The building will contain offices, storerooms and a laboratory on the lower floor and living quarters for the help in the upper story of the structure. It will be equipped with up-to-date plumbing. All the troughs will have a separate water supply. The aerating system will be on the latest and most modern lines. The waste pipes, catch basins and drains will all be of cement. The arrangement of the whole system when completed is expected to be the latest and most improved in fishcultural work.

The supply of eggs will be procured from the Rae Lakes—a system of lakes lying in the heart of the Sierras at an elevation of 10,500 feet above sea level (see Figs. 48 and 49). These lakes were stocked by a party of enterprising citizens from Owens River Valley, under the leadership of Geo. W. Naylor of Independence, former sheriff of Inyo County and now a member of the board of supervisors. The fish were taken from Charlotte Lake and transplanted to the waters of Rae Lakes sixteen years ago. The original stock came from Kings River and were transplanted into Charlotte Lake. A recommendation will be made to the next legislature to set aside the Rae Lakes as a fish preserve for the purpose of protecting the brood fish for their eggs. This is necessary to supply the large new hatchery with an ample supply of eggs.

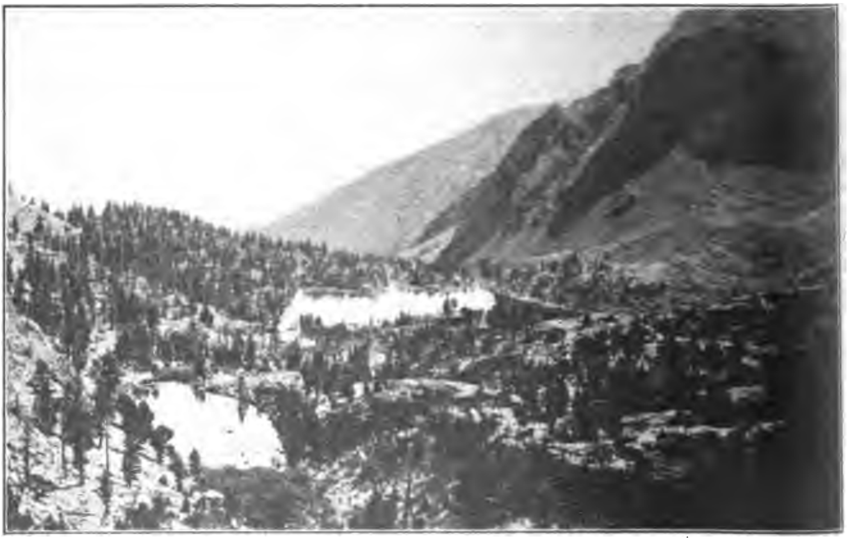


Fig. 48. Lower Rae Lakes. Photograph by J. C. Von Blon, August 17, 1916.

Distribution from the hatchery now being constructed on Oak Creek can be made to all points in southern California as far north as Merced and from there to the Yosemite Valley, easier and better than from any other point where hatcheries can be operated. It will take fourteen hours from Owenyo, the point on the railroad where the fish cars will be loaded, to Los Angeles, and about seventeen hours to Merced. This will allow of the planting of the fry in the shortest possible time from any of the large hatcheries in California. This site can not be excelled for many reasons: first, there is a great amount of pure water in Oak Creek; second, the climatic conditions and altitude for the rearing of fry are ideal; third, a large number of spawn fish can be taken from the Rae Lakes and transferred to the hatchery; fourth, the hatchery is centrally located, where all southern California and the mountain district adjacent to the San Joaquin Valley, including the Yosemite National Park, as well as the region north to Mono and Alpine counties, and the hundreds of barren lakes in the southern high Sierras, can be kept stocked with less expense than under any other system of hatchery work.

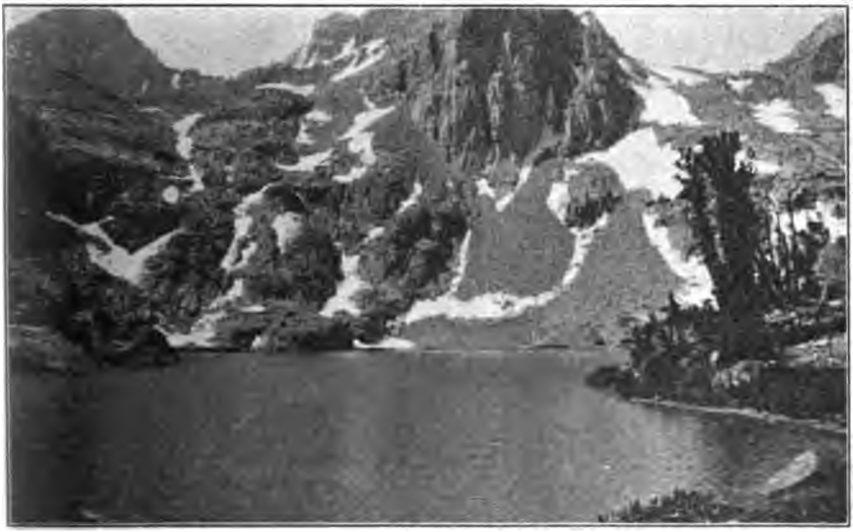


Fig. 49. A near view of one of the Rae Lakes where trout eggs are to be obtained for the Inyo Hatchery. Photograph by R. D. Duke, August 17, 1916.

Acknowledgments.

The commission acknowledges its appreciation and gratitude to the following railway and transportation companies:

The Southern Pacific Railroad Company, Western Pacific Railway Company, Northwestern Pacific Railroad Company, Santa Fe Railway Company, Nevada-California-Oregon Railroad Company, Lake Tahoe Railway and Transportation Company, Ocean Shore Railroad Company, Sierra Railway Company, California Western Railroad and

Navigation Company, Amador Central Railroad, McCloud River Railroad Company, Yreka Railroad Company, Oakland, Antioch and Eastern Railway Company, Northern Electric Railway Company, San Joaquin and Eastern Railroad, Visalia Electric Railroad, Yosemite Valley Railroad and Virginia and Truckee Railroad, for the free transportation of the employees of the hatchery department in care of the eggs and fish, and for the free transportation of our distribution cars. Without their assistance our work would be restricted very materially.

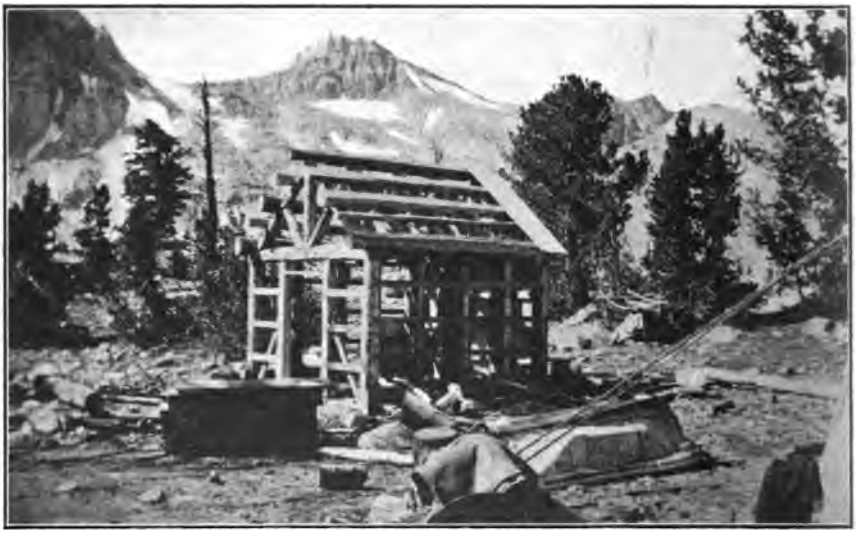


Fig. 50. New egg collecting station at Rae Lakes, showing the type of structure that must be erected to withstand the heavy snows at elevations above 10,000 feet. Photograph by F. H. Shebley.

Recommendations.

The most important recommendation that we desire to make is one in regard to dams in rivers inhabited by migratory fish, particularly salmon. We would recommend that a law be passed the same as the proposed federal law for the territory of Alaska. A law should be passed providing that any person or corporation desiring to construct a dam or obstruction in any stream in which migratory fish exist to a height that will make a fishway thereover impracticable, in the opinion of the Fish and Game Commission of the state of California, shall secure a site and erect thereon a hatchery, dwellings for the help, traps for taking the fish and all equipment necessary to operate a hatchery station according to the plans furnished by the Fish and Game Commission, and to convey the same to the commission when completed. If a site is not available or the water not suitable at or near the dam, the owners or occupants of such dam shall erect a hatchery and equip the same at any point below the dam that the Fish and Game Commission may select for the purpose of propagating the eggs from the fish that are obstructed in their ascent of the river by the dam or obstruction.

This concludes our report. A great many other recommendations could be made regarding the changes in the fishway law, trout seasons, salmon laws, etc., but we will make these recommendations in a separate report on that subject.

We wish to express our appreciation and thanks to your honorable board for the support that you have given us and those associated with us in this work. The earnest support of our superiors and the efforts of our assistants have made the last two seasons work the most successful of any in the history of the commission.

Respectfully submitted.

W. H. Shebley,
In Charge, Department of Fishculture.

REPORT OF DEPARTMENT OF COMMERCIAL FISHERIES.

The Honorable Board of Fish and Game Commissioners.

GENTLEMEN: The recent rapid growth of our fisheries has made it necessary to obtain more detailed and accurate knowledge of our fishery resources than has yet been attempted, if they are to be intelligently conserved. The development of the tuna, sardine and kelp industries has done much to awaken public interest, and there is a demand that some study be made of the albacore (tuna) and that the effect of cutting the kelp for potash be investigated. In order to more efficiently handle the problems arising and to meet the necessity of obtaining a better knowledge of our fisheries, the Department of Commercial Fisheries was formed early in the year 1915.

Before this department was permanently formed the fishing methods employed in the different fisheries and the methods of canning and curing were studied. The more important fisheries were rather hurriedly investigated during the year preceding the last legislative session that the commission might be better able to aid in the enactment of laws governing the fisheries. Some very good and important legislation was the direct result of this study, chief of which was: a redivision of the state into fish and game districts to fit the need of the commercial fisheries; a closed season and regulations for salmon and steelhead fishing on Eel River that would do much to conserve both the salmon and steelhead and at the same time fairly well satisfy the two opposing factions, the sportsmen and commercial fishermen; a better season for Mad and Smith rivers; a closing of the Sacramento River to nets above Vina and the protection of the summer run and part of the spring run of salmon in the district from Colusa to Vina; the closure of many streams and sloughs that were not capable of sustaining net fishing; the abolition of the paranzella net in southern California, a net which nearly ruined the southern halibut supply; the reestablishment of the trammel net in southern California that it might take the place of the paranzella net without destroying the young fish as did the paranzella; the establishment of a uniform and just minimum mesh for salmon and striped bass on San Francisco Bay and the rivers; a uniform catfish law for the Sacramento and San Joaquin rivers; and a law requiring fish handlers and dealers to report the quantities and kinds of fish handled each month.

Since the formation of this department we have considered it of first importance to gather accurate and detailed information concerning the present commercial fisheries of the state, with the ultimate object of building up these industries and at the same time conserving the marine species upon which these industries depend, and to investigate and aid in the development of our latent and undeveloped fishery resources.

We are recording the results of our work in the form of permanent notes, which are filed in such form that they will become the property of the state and can be referred to readily and be used by anyone who may wish to continue the work. Much valuable information has been lost in the past because it was not filed. We plan, as soon as we have sufficient data on any one fishery, to put the information in the form of reports accompanied by illustrations, so that it can be published. We have published reports on the tuna, shad and paranzella fisheries and are prepared to publish reports on the salmon, sardine, striped bass, rock cod, crab, catfish and abalone fisheries.

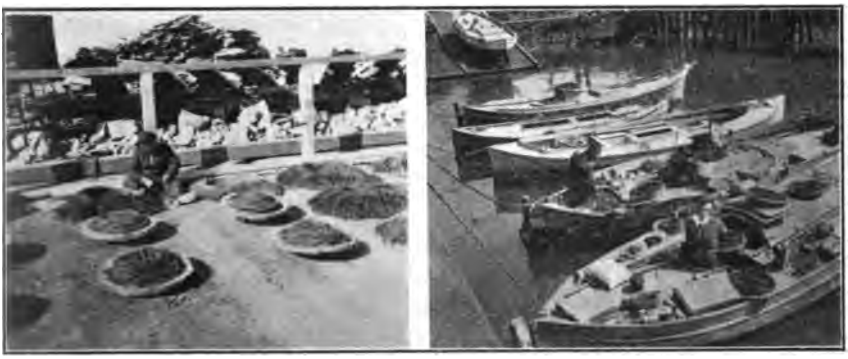


Fig. 51. Rock cod fishermen at Fishermen's Wharf, San Francisco. Photographs by A. M. Fairfield.

A law enacted by the last legislature requires dealers and handlers of fish to make an accurate monthly statement of the quantity and varieties of fish handled and where they were caught. We have considered it of the greatest importance that this law be enforced and that the reports be complete and accurate. To that end a list of all the dealers of the state required to make this report was compiled and printed blanks issued to each. The law went into effect in August, 1915, and we have been able to get a very complete and accurate record of the fish handled since the 1st of October, 1915. This record, if kept up, will show the decline or rise of any fishery and the season of each variety of fish. This, supplemented by the number of boats, men, nets and the intensity of the fishing, which we are obtaining, will give us the basis upon which all conservation measures must rest. We are publishing the statistics as we gather them in the quarterly bulletin, California Fish and Game, along with other contributions on subjects of interest concerning the fisheries.

We have investigated, as far as we could, the fish marketing problems; the sanitary or unsanitary handling of fish by fishermen, by markets and in shipment; the cold storaging of salmon, the utilization of fish waste for fertilizer or for chicken feed. We have, since the first of the year 1916, been gathering data regarding the prices paid the fishermen and the prices paid by the retailer and consumer for the different varieties of fish in representative towns in the state. Since the appointment of the State Market Director we have given him the results of our work and have cooperated with and aided him in every possible way. Practically all of the recent data on California fisheries which are available are the result of the work of this department of the Fish and Game Commission. Now that he has taken up the fish marketing problem, we will be relieved of much of that part of the work, as it more properly belongs to him. We will probably continue, at his request, to aid in certain lines where our facilities for obtaining information are better than his.

We have been appointed a member of the Northern California Fish Exchange Committee as organized by the State Market Director. This exchange consists of five members, the fishermen, the wholesalers, the retailers, the State Market Commission and the Fish and Game Commission each being represented by a member on the committee. The last two named members are to represent the people of the state. The object is to unite the producer, the dealer and the people for their mutual benefit and fix each day the maximum price the consumer shall pay. Under the arrangement a certain per cent will be collected from the business for advertising, by which means it is expected to induce the people to use fish every day of the week and thus increase consumption, lessen the cost to the consumer and help develop our fisheries.

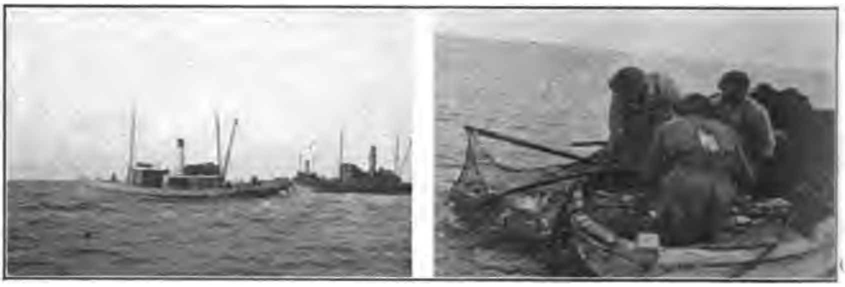


Fig. 52. Sole and sand-dab steam trawlers working out of San Francisco and a Santa Cruz gasoline trawler hauling in catch. Photographs by H. B. Nidever.

The working rules of the Fish Exchange Committee provide for the adjustment of differences or disputes between the fisherman, wholesaler, retailer or the public. They provide the first good opportunity the fishermen have had of presenting their side of the case and decisions reached by the committee should have great weight with the legislature. It will be the particular duty of the representative of the Fish and Game Commission to represent the fish themselves; in other words, to see that our fishery resources are conserved.

A survey of the economically important shellfish of the state, begun several years ago, has been taken up and completed under the direction of Dr. Harold Heath of Leland Stanford Junior University. A full report is in preparation. In connection with this work, Pismo clams were transplanted to several suitable beaches in San Luis Obispo County and an extensive plant of eastern softshell clams made in Morro Bay, which appears to be especially well suited to them. A report of this work was published at the time in CALIFORNIA FISH AND GAME.

In 1911 and 1912, under the direction of Dr. C. H. Gilbert of Leland Stanford Junior University, the Fish and Game Commission liberated large numbers of marked quinnat salmon fry in the Sacramento River, Scott's Creek and San Lorenzo River. This was the most comprehensive fish marking experiment ever undertaken. More than 200,000 marked salmon fry were liberated and it was expected that many important facts regarding the life of the salmon would be learned from these experiments. The fish resulting from the first fry liberated were in their fourth year in 1914, at which time they were expected to appear in Monterey Bay and in the streams where they were liberated. In order that we might recover as many as possible of these fish we distributed circulars to all handlers of fish on Monterey Bay and to all handlers of fish from San Francisco Bay and rivers. These circulars contained a diagram of a salmon to illustrate the different marks and full directions as to how to take samples of scales and make a record of each fish. The commission's deputies at Monterey, Santa Cruz, San Francisco, Sacramento and on the bay and river patrol boats assisted in the recovering of these fish. The fish dealers were much interested and gave every assistance. We personally visited nearly every one of these people to explain the importance of recovering these fish. We had envelopes printed and distributed which could contain a sample of scales from each and the record of each as to size, sex, kind of mark, etc. The number recovered was disappointing.

In the year 1915, partly because we were better prepared to carry on the work, the number recovered was considerably larger. By placing a rack across the San Lorenzo River we were able to get a good record of the marked fish entering that stream. A few fish were taken in Monterey Bay in 1916, but not many were expected as they are now in their sixth year. As yet the material and records obtained have not been studied further than to determine that the method employed in ascertaining the age of salmon from the scales is accurate. While the total number of fish recovered was disappointing the material and data collected is very valuable, and when properly studied and reported upon, will be a most valuable contribution to our knowledge of the quinnat salmon.

DEVELOPMENT OF CALIFORNIA FISHERIES.

In the following we give the important developments in our fisheries:

The Long-finned Tuna or Albacore.

Since our report on this industry in the last biennial report of the Fish and Game Commission the fishery has continued to grow until it now more than doubles in value and importance either the salmon or sardine industry.

In 1914 the tuna pack was 325,000 cases of one-pound and half-pound cans. The pack for 1915 was 360,286 cases, of which there were 136,046 cases of one-pound cans, 172,263 cases of half-pound cans, and 51,977 cases of quarter-pound cans, with 48 cans to the case. For this pack there was required 23,500,000 pounds of round fish, and the wholesale value of the pack was $2,300,000. Besides the tuna that were canned more than two million pounds were dried, smoked, salted and used fresh.

During 1915 twelve tuna canneries were in operation in southern California and in 1916 the number has been increased to sixteen, which during the season give employment to 1800 people. The amount invested in buildings and equipment is $910,000. About 400 fishing boats valued at $1,000,000 are employed, and the number of tuna fishermen is 1200.

The remarkable feature of the season of 1915 was the large take of tuna in November. The demand for canned tuna is now so great that it exceeds the supply and the prices obtained are high. Most of the canneries have been enlarged in anticipation of a larger catch, but unless a good catch is made late in the year, as happened last season, the pack is likely to be less for 1916. The tuna packers are anxious to have the migration and life history of the albacore investigated. They would like to know how much fishing the albacore will stand and what measures, if any, will be needed to conserve the industry. We have no conservation measures to propose, for the albacore that appear in our waters are mostly mature and are here in search of food. Any important conservation measures that may be needed would have to be applied in Mexican waters, for it is there they spawn and it is there the young are found. The industry in this state will adjust itself to the number of fish that come this far north, but the tuna packers would naturally like to know beforehand how much the fish will stand, that they may regulate their industry accordingly. So far no serious attempt has been made to can the albacore in Lower California. It is believed that albacore may be taken throughout the year near Cape San Lucas, Lower California. If this is true and a large canning industry should be built

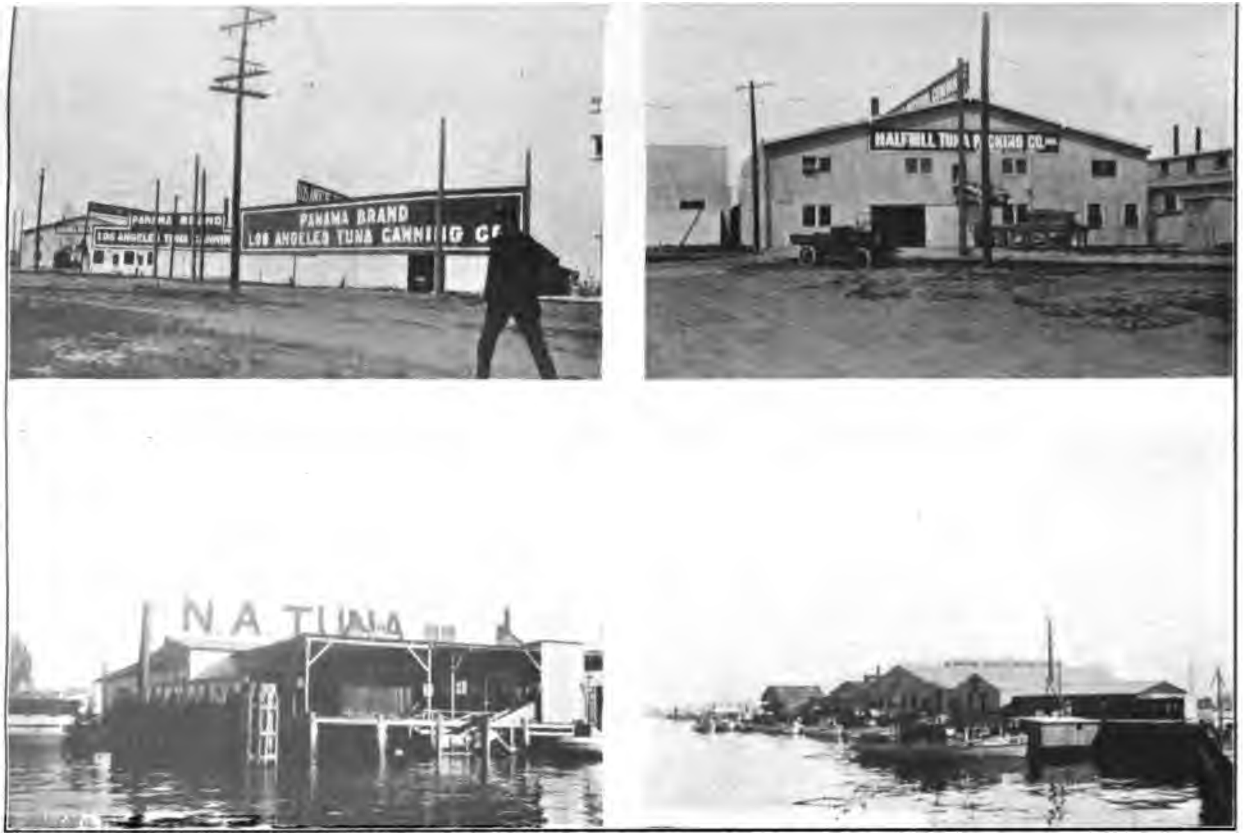


Fig. 53. Tuna canneries of Los Angeles Tuna Canning Company, Long Beach; Halfhill Tuna Packing Company, Long Beach; North American Tuna Canning Company, Terminal Island; and Stafford and Crandall and Tweedale companies at Wilmington. Photographs by H. B. Nidever.

up at that point, it would probably seriously affect the supply of fish in this state.

The difficulty of securing live sardines and anchovies for bait is still the serious problem that it was when we last reported. Attempts have been made to use large purse nets to capture the albacore and thus get along without bait, but the expense of operating the nets has been so great and the catch so small that the method has been abandoned. Large circle nets have been successfully used in Japan for these fish, but it is doubtful if they will ever be a success here as our fish seldom appear in compact schools.

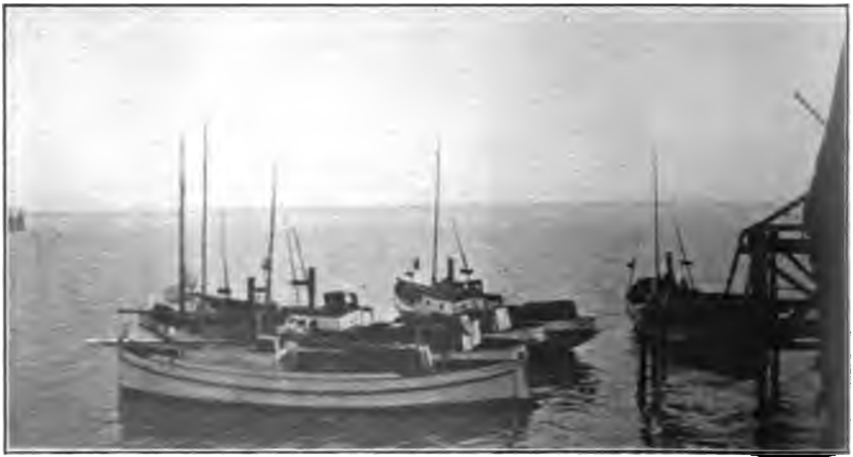


Fig. 54. Tuna fishermen's boats at San Diego. Photograph by H. B. Nid[illegible]

Salmon.

Only two species of salmon are taken commercially in California, the quinnat or chinook and the silver or coho. A few individual dog and humpback salmon are occasionally found entering our small streams. The silver salmon enters nearly every stream of any size from Monterey Bay north, with the exception of the Sacramento River, but is not taken in any quantities except in the Eel, Klamath and Smith rivers. The quinnat or chinook is the principal salmon of Monterey Bay and the Sacramento, Eel, Mad, Klamath and Smith rivers.

SALMON CATCH FOR THE YEAR 1915.

Monterey Bay (chinook)	3,045,446 pounds.
San Francisco Bay and lower rivers	4,374,932 pounds.
Sacramento River above Colusa	172,389 pounds.
Total	7,592,767 pounds.

This amount was utilized as follows:

450,000	pounds canned.
2,742,400	pounds mild cured.
750,000	pounds hard salted.
3,650,367	pounds used fresh.

At Fort Bragg, Mendocino County, 56,247 pounds of chinook salmon were taken by trolling in the open sea and shipped to San Francisco. The combined catch on the Eel, Mad, Klamath and Smith rivers was: 1,649,189 pounds chinook and 286,719 pounds silver salmon. Of this amount, 1,063,189 pounds were canned, 840,908 pounds were used fresh and 32,000 pounds were mild cured.

The total catch for the state was 9,298,203 pounds chinook and 286,719 pounds of silver salmon. In addition to this there were taken in Eel and Mad rivers, 33,204 pounds of steelhead, which were marketed fresh.

The 1916 salmon catch for the six months ending June 30th was:

Monterey and Santa Cruz	3,848,073 pounds.
San Francisco Bay and lower rivers	983,979 pounds.
Sacramento River above Colusa	149,080 pounds.

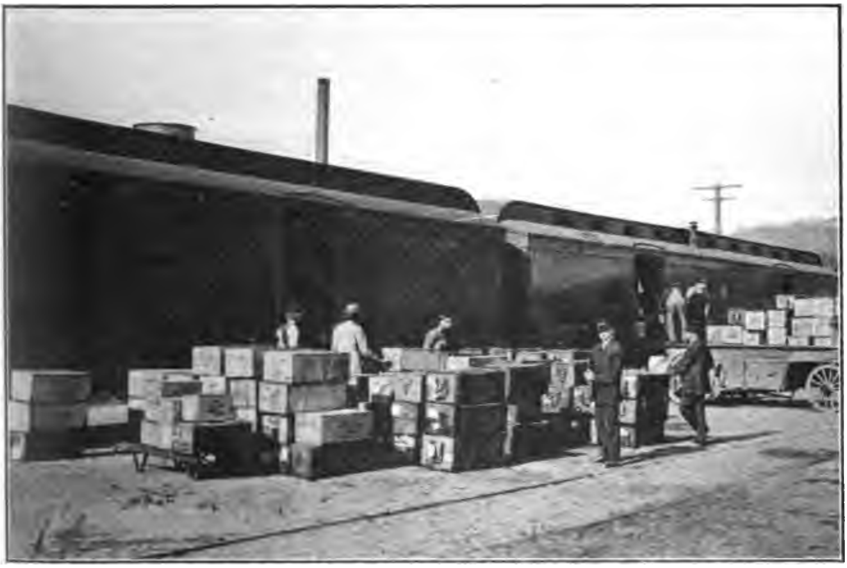


Fig. 55. Loading 150 boxes of fish, principally salmon, at Monterey. Photograph by A. M. Fairfield.

The salmon of the Sacramento River are apparently holding their own, if we include the salmon taken in Monterey Bay and outside the Golden Gate, as it is proper to do. While our figures for the catch of Sacramento salmon for 1915–1916 are not up to the estimates of former years, they are undoubtedly nearer the actual average yearly catch, as figures in the past have been principally estimates with the usual tendency to avoid underestimating the catch. The fall run on the Sacramento has been less than the average for the past few years on account of the greatly increased catch outside and in Monterey Bay.

A few years ago a half-million pounds was a good catch on Monterey Bay. In 1914 the catch was two and one-half million pounds. In 1915 it jumped to three million pounds and up to June 30, 1916, the catch for Monterey Bay and outside "The Heads" exceeded four million pounds. In 1916 the greatest catches in Monterey Bay were made in May. About 400 boats were engaged in trolling and the record day's catch for all boats was 85 tons. This year the run was followed up the coast by the fishermen. Early in August the boats were making good catches near Davenport, above Santa Cruz, and in a few days they were just south of the Golden Gate. For nearly three weeks the salmon remained outside, part of the time north and part of the time south of the entrance. Nearly one hundred boats trolled for the fish while they were off the Golden Gate. On one day over 50 tons were taken. Many small salmon were taken during this run outside San Francisco Bay, a large number being less than five pounds in weight. Such a run of small fish was never observed here before.

The spring run of salmon on the Sacramento River has been poor for the past seven or eight years. Several reasons have been advanced for this: That no protection of a closed season is given the spring run as is given the fall run; that the seines in the upper river have taken the spring fish principally and have allowed very few to pass to the spawning beds; and that little attention is given to the artificial propagation of the spring run. These theories are all based on the supposition that the two runs are practically distinct and that spring run salmon make spring run salmon and fall run salmon make fall run salmon. As a matter of fact, the actual relationship of the two runs has never been demonstrated. It is the belief of fishculturists, however, that the fish resulting from the eggs laid down by either the spring or fall fish are more apt to return as fall fish. Theoretically the progeny of the spring run fish have a better opportunity to survive and pass out of the river to the sea as good sized fry than have the progeny of the fall run fish.

For the purpose of giving the spring fish a better chance to reach the spawning grounds in the upper waters of the river, a law was passed at the last session of the legislature which prohibits netting in the river above Vina and provides a closed season for the district from Vina to Colusa from May 15th to the end of the year. It was hoped that as a result of this measure, the one hatchery that operates on the spring run —the federal hatchery on the McCloud River—would be able to take a large number of eggs, but unfortunately they failed to operate the hatchery this spring; nor did they operate last year for the spring run. We are informed by our deputies that a much larger number of salmon ascended McCloud River this summer than last year, which indicates that this upper river salmon protective measure has had the desired result and that the natural hatch will be increased thereby even if the artificial hatch is not.

Shad.

Only a few years ago the shad was so plentiful as to be almost a nuisance, but now it is being overfished and protective measures will be necessary to prevent serious injury to the supply. The Chinese shrimp fishermen, when they were compelled to discontinue shrimp fishing in 1911, prepared to salt shad for the markets of China. They began operations in the spring of 1912. The next year saw some of our larger fish handlers in the business. Figures are lacking for the first years, but in 1915, 2,400,000 pounds were dry salted; besides this, 100,000 pounds of fresh shad roe were used locally and shipped East and 606,048 pounds were canned in half-pound cans. About 350,000 pounds of the fish were used fresh within the state and 360,000 pounds of round fish were canned, making a total of 3,816,048 pounds for the year. On account of the increased water freight rates no shad were dry salted for the Chinese trade this year, but the increased demand for canned shad and for our fresh shad in the eastern United States resulted in a larger catch. Thirty-three carloads of the fresh fish were shipped East, as well as twenty casks of mild cured shad, for which there is an Eastern demand developing. There were used in the fresh markets of the state up to June 30, 1916, 405,992 pounds out of a total of 4,413,675 pounds taken. A great many more were canned than in 1915.

In spite of the fact that the catch is rapidly increasing from year to year, the supply of fish is decreasing. It is estimated that the number of shad entering the river in 1915 was 40 per cent short of the year before and that the run of 1916 was 60 per cent short of the 1915 run. In fishing for shad, gill nets with a 6½-inch stretched mesh are used. This size mesh catches the roe shad only and allows the undesirable buck shad to pass through. The fishing which was formerly almost entirely in the river is now mostly in the lower bays, San Pablo Bay especially. The nets used on the flats of San Pablo Bay have, in addition to shad, been catching large numbers of striped bass which come in preparatory to ascending the river to spawn.

In 1915 accurate account was kept of the proportion of male to female shad on the upper San Joaquin River. The males outnumbered the females 20 to 1. This year the proportion is stated to be near 40 to 1 and the total number of shad appearing in the upper river is decreasing very rapidly. This difference in number between the sexes shows the intensity of the fishing. The sexes normally are about even and if the males exceed the females 40 to 1 in the upper river it means the 6½-inch mesh gill nets have captured 97½ per cent of the roe shad. As the corresponding 97½ per cent of males is useless as far as the propagation of the race is concerned, it is evident that only 2½ per cent of the run is left to continue the species, when 50 per cent would be nearer the right number. We will have one more year of this overfishing before any protective measure can take effect, and in the meantime, the shad run is likely to be nearly ruined. We very much need a law similar to that of other states which gives to the fish and game commission and to the governor of the state the authority to make regulations in cases of emergency of this sort.

Halibut.

The California halibut (*Paralichthys californicus*) has become one of our most important food fishes and the annual catch by California fishermen exceeds 5,000,000 pounds. It is found from San Francisco south, being most numerous south of Point Concepcion and in the Mexican waters of Lower California. Unlike the northern halibut, which it resembles in appearance, it inhabits the shallow water along shore and the majority of the fish marketed do not exceed 20 pounds in weight, although individuals weighing from 50 to 60 pounds are occasionally taken.

The principal methods of capture have been by trammel or three meshed nets set on the bottom and by the drag nets known also as paranzellas or trawls. The drag nets, used as they are, near shore, have proved themselves to be very destructive to the young halibut. For one ton of marketable halibut caught by this method, three tons of the young halibut too small to market were destroyed, for very few of them could be returned to the water alive. When the loss is figured in numbers instead of weight we find that more than 50 young were destroyed in capturing one of marketable size. To remedy this condition the use or possession of paranzella or trawl nets was prohibited in southern California at the last session of the legislature, and the use of the trammel net restored which, until that time, through some mistaken notion, was prohibited within one mile of shore—the only territory where they could be used. In addition to abolishing the drag net, our present law prescribes an 8-inch minimum mesh limit for trammel nets and a four pound minimum sale limit for halibut, so that this fishery is much better protected than it has ever been. It is doubtful, however, if it has protection enough, for the halibut grows slowly and has not reproduced at the minimum weight of four pounds as set by law. The intensity of the fishing for this species is bound to increase and if at any time our fishermen are excluded from Mexican waters, overfishing in our waters will be sure to take place. It may be necessary, if we are to conserve this fishery, to protect a portion of the fish of reproductive size by increasing the minimum mesh limit of the nets or by closing small areas to fishing. The halibut is another of our fishes that needs to be thoroughly investigated.

The amount of halibut taken by California fishermen between October 1, 1915, and June 30, 1916, was 3,951,690 pounds. Of this amount 1,668,814 pounds were taken in Mexican waters.

Crabs.

Crabs taken at San Francisco during the open season 1914–1915 (November 15th to July 30th) amounted to 49,716 dozens; for the corresponding season of 1915–1916, 40,370 dozens. Crabs taken in Monterey Bay during season 1915–1916 amounted to 15,037 dozens and those taken in Del Norte and Humboldt counties during the same season, 5,114 dozens.

Crabs, we believe, are adequately protected by the present law, under which the marketing or possession of female crabs or the marketing or possession of any male crab under seven inches in width is prohibited and a closed season is provided from July 31st to November 14th. With this protection there can be no serious depletion of the crabs, for a sufficient amount of breeding stock is preserved and the fishing, no matter how intense, can not go beyond the limit of the natural annual increase of these crustaceans. The San Francisco fishery seems to have reached this limit and toward the end of the season the fishermen are not able to find enough legal crabs to supply the market. During the closed season that follows, the crabs cast their shells and increase their size about one-fourth, so that on the opening of the season on November 15th the legal sized male crabs are plentiful again.

The crab fishery in Monterey Bay has had a remarkable development. Only two or three years ago there were so few crabs in that bay that it did not pay to fish for them. During the last open season, as will be seen from the figures above, over 15,000 dozens were taken. In contrast to this is the crab fishery of Humboldt County which produced less than one-third this amount. The reason for this is not the scarcity of crabs, but the fact that there is a county ordinance prohibiting the shipment of crabs out of Humboldt County. As already stated, our present state laws adequately protect the crabs, and to prohibit shipment from the county gives the crabs more protection than they need and prevents the development of a valuable industry. Under this restriction the crabs are extremely abundant and of large size, one-fourth of those caught running over eight inches in width. The fishermen instead of getting $2.00 per dozen, as do the San Francisco fishermen, get less than $1.00 per dozen. It is estimated that this fishery could supply annually at least 30,000 dozen crabs, for which the fishermen would receive $60,000, if they were given access to outside markets, instead of less than $5,000 as at present.

Shrimp.

Shrimp fishing by means of Chinese nets was resumed in 1915 in District No. 13, set off for the shrimp fishermen in the south end of San Francisco Bay. The use of Chinese shrimp nets was prohibited by law in 1911 at which time the annual catch of shrimp was near ten million pounds. Of this amount a little less than one million pounds was used in the markets of the state, the remaining 90 per cent being dried and shipped to China. In the four years following the enactment of this law no other successful method of catching shrimp was devised and most of the time shrimps were not to be found in the markets. In redividing the state into fish and game districts it was possible to set aside the south end of San Francisco Bay for the use of the Chinese nets, where it had been shown that the number of young edible fish destroyed by them was not large in comparison with the former destruction in other parts of the bay. Since the Chinese began operating last fall three or four boats have fished intermittently and the total catch is running about 350,000 pounds per year, which is but little over a third of what the markets took before fishing was stopped in 1911. The boats fish now only when the tides are most favorable and when the shrimps are plentiful. It does not pay them, they say, to fish when the catches are small. Formerly the profit was principally in the dried shrimps and the larger ones were screened out and sold fresh as a side issue. The price obtained now for the fresh shrimps is the same as then—6 and 7 cents per pound—although the operating cost is much greater on account of drying operations being cut off.

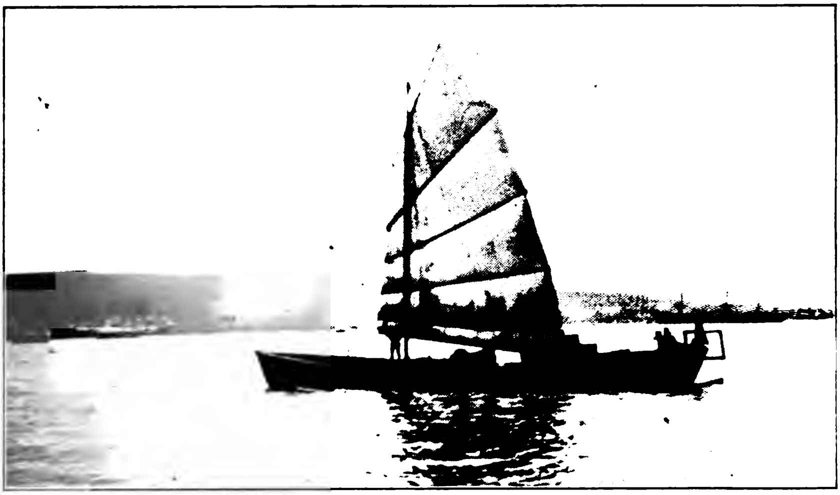


Fig. 56. Chinese shrimp fishing junk on San Francisco Bay. Photograph by H. B. Nidever.

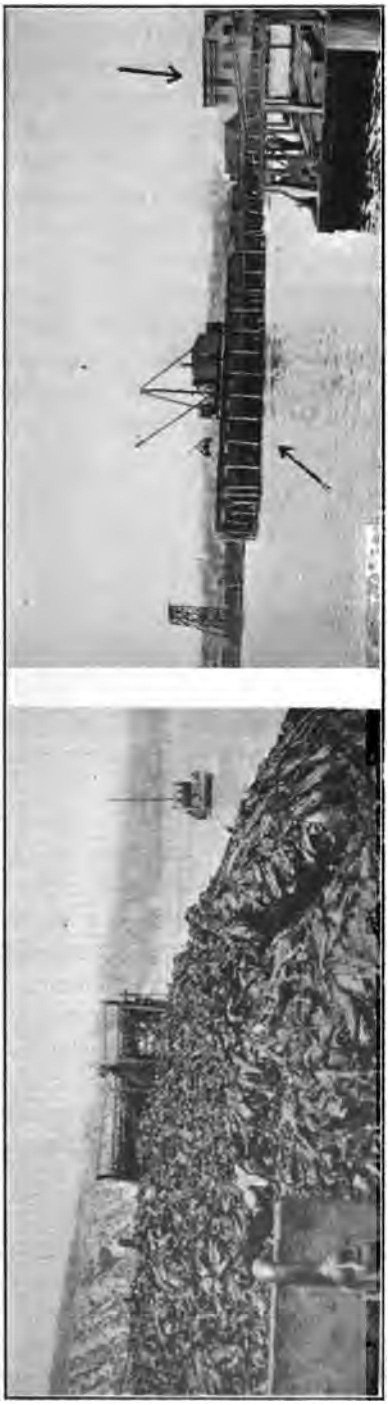


Fig. 57. Barge load of kelp ready for removal to reducing plant. Hopper for receiving kelp from cutter, plant of Swift and Company, San Diego. Photographs by H. B. Nidever.

Kelp.

The cutting of kelp along our coast for the potash contained therein is a new and very large industry which has sprung up within the last two years. The immense beds or groves of kelp are all within three miles of the shore and come under the jurisdiction of the state. At the 1914–1915 session of the legislature the State Fish and Game Commission was given the same supervision over the kelp and other marine plants that it has over the fish and game, so that it will be the duty of the Fish and Game Commission to enforce any state laws that may be passed for the regulation or conservation of the kelp industry.

It has long been known that the kelp along the Pacific coast contained a high percentage of potash. Considerable experimenting has been done to find methods of gathering the kelp and extracting the potash and other by-products that are commercially profitable.

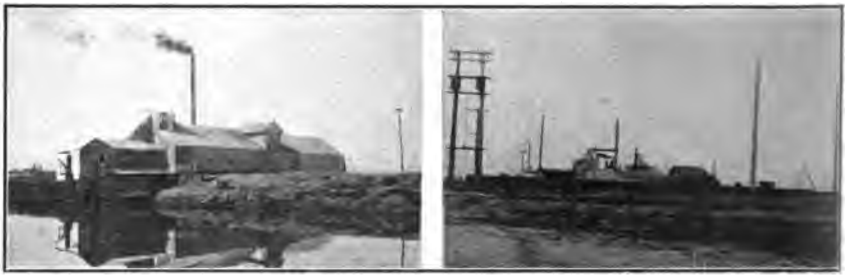


Fig. 58. A fish reduction plant for the manufacture of fertilizer, and a kelp reduction plant, at Long Beach. Photographs by H. B. Nidever.

The main source of our potash supply has been Germany, where deposits in what were ancient lakes or seas are found. The United States Department of Agriculture, realizing the importance of having a source of supply of our own and wishing to encourage the greater use of potash as a fertilizer to increase our crops, started an investigation of our kelp beds and conducted experiments in extracting the potash. The results of these investigations are to be found in Report No. 100 of the United States Department of Agriculture.

The beds of kelp which can be profitably harvested in California are all of them along the southern coast of the state, mostly south of Point Concepcion. Immense beds are also found along the peninsula of Lower California in Mexican waters.

The kelp is very largely composed of water and to profitably extract the potash large quantities will have to be handled. It requires a great outlay of capital for a company to embark in the enterprise. The high price of potash caused by the war has been such an inducement that several large companies have built plants at Long Beach and San Diego and are now beginning to harvest the kelp, confident that there is a sufficient supply, even though many may engage in the same industry.

At the present time there are four companies operating at San Diego, five at Long Beach and one near Wilmington. There are also several other factories being constructed at San Diego and Long Beach. Already three million dollars has been invested in the plants in southern California. Sixteen large reapers are employed, which have an average capacity of 200 tons each per day. The larger of the companies now operating are: The Hercules Powder Company, at National City; Swift Packing Company, San Diego; American Products Company, Long Beach; and The Diamond Match Company, at Wilmington.

There has been considerable uneasiness as to what effect the cutting of kelp will have on the fisheries of the state. Many fear that the cutting will destroy the beds and thus the protection which the kelp affords the beaches will be removed and that the clams which inhabit the beaches and the spiny lobsters which live more or less within the protection of the kelp will be greatly injured. Also that the young fish, especially the young barracuda, which are in the habit of seeking a refuge in the kelp, will be deprived of this refuge and will leave that part of the coast. It is also believed by many that the kelp beds are extensively used as spawning places for many of our commercial fish; that they attach their eggs to the kelp and that if the kelp is removed these eggs will be destroyed.

These beliefs are almost entirely groundless. Members of the Scripps Institution for Biological Research at La Jolla, employed by the government in its kelp investigations, are still engaged in watching the effect of cutting by the several large companies located there. It is their opinion that these companies are not likely, at least within the next several years, to devise kelp cutters or reapers which will cut the kelp more than six feet below the surface of the water. It has been observed that after one of these reapers has passed over a bed cutting the kelp to a depth of six feet that the kelp floats to the surface and it is difficult to even tell where the cutter has been. At the worst, there will be much of the kelp, especially along the edges of the beds, that will not be touched and which will afford protection to the beaches. It has been pointed out that where great masses of kelp grow in beds a violent storm detaches the plants from their holdfasts and the whole mass is carried away, thus leaving the beach unprotected. It is believed that where beds have been subjected to cutting that they will not be washed out by storms and will be a better protection to the beaches. Further, the kelp will still be a refuge for fish, even if it is cut six feet below the surface. It will also be a refuge for crawfish. Few or none of our commercial fishes spawn in the kelp beds.

The species of kelp which is being harvested in California is the *Macrocystis pyrifera,* which grows in long strands, from one to three hundred feet in length, and is held to the rocky bottom by means of a holdfast. The leaves float out on the surface of the water and are held suspended by floats specially designed for the purpose. The plants reproduce by spores, which lodge at the bottom, and start new plants, and also by stooling or sending off branches from the stock near the holdfast. If the top end of a plant is cut off, the rest of that particular stalk ceases to grow, but the shorter branches, which are continually arising from the base, soon grow up and take its place. Experiments are now being conducted at La Jolla for the purpose of determining the rate of growth of these plants and it is believed that the cutting of the kelp near the surface will tend to make them stool so that the growth will be increased by the cutting.

The companies engaged in the cutting of kelp are all large companies of proved business integrity and it is to their advantage not to destroy the kelp beds, but to conserve them and cut them only as fast as they will reproduce themselves.

It is the desire of the federal government that the state enact laws under which kelp beds may be leased or apportioned to operating companies and under such regulations that the beds will furnish continuous crops.

It was believed by those who investigated the California beds under the direction of the United States Department of Agriculture that there was enough kelp from Point Concepcion to the Mexican line to supply annually, without injury to the beds, all the potash used in the United States. The amount used annually before the great war cut off the supply from Germany was 300,000 tons, which, at antewar prices, was worth $15,000,000. The cutting has now progressed until a few of the beds have been cut over once and it has been determined that they are not producing the quantity estimated in the survey. This shortage may be as much as 50 per cent. It is believed that one reason of this is that since the survey was made storms have reduced the beds and they have not yet had time to reestablish themselves. The kelp harvesters or reapers that so far have been devised fail to pick up much of the kelp that is cut. This fault is overcome to a certain extent where one reaper follows the other and picks up what is left. There has been a good deal of complaint that the reapers cause large quantities of kelp to drift onto the beaches, where it smells badly and causes flies to accumulate. In most cases where an investigation was made, the kelp on the beaches was made up of the whole plants which had been torn from the bottom by the high tides and rough water. However, the whole kelp problem needs to be thoroughly investigated and in the meantime such regulatory laws as are obviously necessary should be passed.

OUR UNDEVELOPED FISHERY RESOURCES.

With few exceptions our sea fisheries have not been developed to their full capacity. By proper conservation they can be greatly extended. The fisheries can be more readily developed by educating the public in the use of fish and by improving the methods of handling, especially in inland towns. This work properly belongs to the State Commission Market, but we expect to assist by getting out educational bulletins containing descriptions of the different varieties of fish, how and where they are caught and when they are in season, with recipes for cooking. In other words, to develop the fisheries and reduce the cost of fish by creating a greater demand. This has been done in a few instances by private parties, as in the case of the California sardine and the albacore. There was no demand for either of these fish until they were placed before the public in a clean and appetizing form and the public educated to their use by advertising. Within a period of five years these two fish sprang from unimportance to a position of the highest rank. The albacore has assumed first place among our fisheries and the sardine is crowding the salmon for second place. What has been done with these two fish by private parties can in a measure be done with others with encouragement and assistance from the state. It is more properly the duty of the state to investigate and develop its fisheries than it is to investigate and develop its agricultural resources, for the fish are peculiarly the property of the people. We have several species of good food fish in almost unlimited numbers which are little used. A few of the important ones are the herring, anchovy, hake, shark and squid.

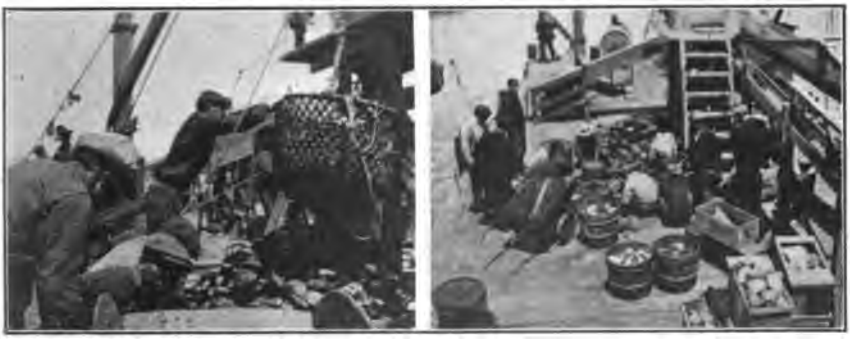


Fig. 59. Unloading and sorting abalones at Monterey. Photographs by H. B. Nidever.

Our shell fisheries are neglected and if properly conserved may be greatly extended. We have many extensive sand beaches where the Pismo and razor clams will flourish if they be but planted there. The soft-shell mud clam, originally introduced from the Atlantic coast, is suited to many bays and mud flats where it has not yet been introduced. On the Atlantic coast great advances have been made in "farming" the soft-shell clams and they are being raised on beds where they do not naturally establish themselves, by removing the young "spat" from beds where a good "set" has been made and sowing them like grain on these barren beds. The production of clams can be increased by this method almost without limit. As there is a most excellent market for these clams such an increase in production would be very desirable. In order to raise clams, or oysters for that matter, it is necessary to protect the beds from the depredations of the sting-rays with stake fences. No advance can be made in the cultivation of clams unless individual fishermen can control their own beds. The law on the subject should be thoroughly investigated to see if it is not possible under the Fish and Game Districting Act, or otherwise, to apportion beds to fishermen.

Recent great advances in oyster culture in the state of Washington make it certain that similar progress can be made here. Our production of oysters should be on the increase instead of remaining at a standstill. Our oyster and clam resources need to be thoroughly investigated by an expert and the ways and means pointed out for developing this neglected industry. Over 25 years ago C. H. Townsend made a report on the oyster resources of California for the United States Bureau of Fisheries. This report may be found in the 1893 report of the United States Commissioner of Fisheries. It was the result of a preliminary scientific survey of our oyster resources and the author was decidedly of the opinion that our oyster production could be greatly increased, and, even at that early time, complained of the antiquated methods pursued in the industry. Since that time we have made little improvement and no oyster expert has since visited our oyster beds, although the Bureau of Fisheries has several such who have been of invaluable assistance to oyster growers on the Atlantic coast. This has not been a case of neglect, for the truth is we have not asked them to come, as the industry has not been awake to the importance of oyster investigation work.

We have a sea mussel that abounds along nearly our entire 1000 miles of coast, clinging to the rocks in compact masses. In many places it is extremely abundant. These mussels have a food value equal to that of oysters. They are most excellent when canned or pickled. They grow more rapidly than oysters and the weight of the shell compared with the meat is much less than in oysters. All that is lacking is an inclination on the part of the public to eat them. They are eaten extensively in Europe, where in many places they are cultivated on barriers set up for the purpose.

On our Atlantic coast there is a mussel almost identical to ours, for which the United States Bureau of Fisheries is at the present time endeavoring to create a demand. There is some difficulty on the Atlantic coast in inducing the public to eat the sea mussel, for the Indians for some reason shunned it, preferring the mud clam, of which there was plenty. On our coast there can not be this prejudice, for the Indians along our entire coast subsisted mainly on them. There is an almost unlimited supply of these mussels and if it becomes necessary the production can be increased. We have, besides the large sea mussel, two species of smaller mussels that are found in the quieter waters of the bays and in estuaries at the mouths of streams. These species are occasionally found in the markets. We expect to start an educational campaign to induce the people to make use of these valuable shellfish.

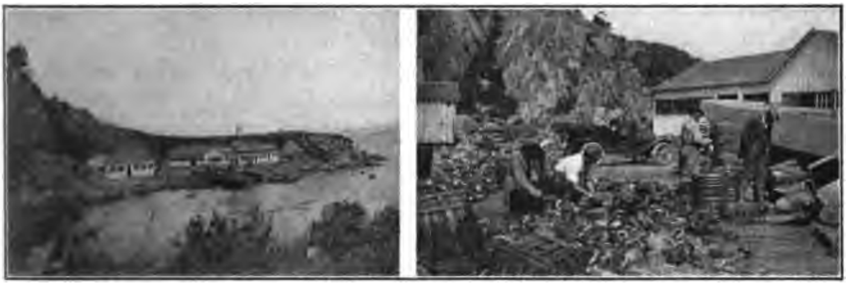


Fig. 60. Point Lobos Abalone Cannery. Cleaning abalones at Point Lobos Cannery. Photographs by H. B. Nidever.

Recommendations.

We recommend that our system of taxing the fisheries be revised. Under the present system the revenue is derived from market fishermen's licenses, wholesale fish dealers' licenses and from fines imposed. The annual revenue from these licenses is about $40,000, which is not nearly adequate to cover the present expense of commercial fisheries patrol, propagation of commercial fishes and investigation work. A market fisherman now pays ten dollars a year and a wholesale fish dealer pays five dollars per year. Under this system the poorest clam digger pays double the license paid by the largest wholesale dealer or canner. The tax on dealers is ridiculously small, while ten dollars is too much for many of the fishermen. California is behind the other states and other countries in the matter of taxing its commercial fisheries and the main reason our fisheries have not advanced more rapidly is that the state has not had sufficient money for its commercial fisheries work. The system employed in Oregon, Washington and Alaska, as well as in most of the Atlantic states, is to tax the fishermen according to the apparatus they use and the canners, packers and wholesale dealers according to the amount of fish they handle, and where oyster and clam beds are controlled by individuals the beds are taxed according to their yield. This system is more just and equitable and will yield a larger revenue. With an increased revenue we could do much that at the present time we are not able to do. In southern California, which now leads in the importance of its commercial fisheries, we need at least two good seaworthy boats for patrol and investigation work. These boats should be equipped with hoists for the use of dredges, trawls and pelagic nets and each should have a man in its crew who has had sufficient scientific training to enable him to carry on investigation work under the direction of a competent central head. We need to complete the investigations begun on the spiny lobster and edible crab and to conduct experiments on propagating these two species as well as to propagate certain forms of marine fishes, the artificial propagation of which has been carried beyond this experimental stage in other places. We need to investigate and learn all we can of the habits and life history of the albacore and other commercial fishes, for we know little about any of them. Furthermore, we should have a thorough investigation of the kelp industry and of the effect of cutting the kelp beds. We need also a biological survey of our coast and of our streams and lakes. All of the above could be done and our commercial fisheries thereby be greatly benefited.

Respectfully submitted.

(Signed) N. B. SCOFIELD,
In Charge, Commercial Fisheries.

REPORT OF BUREAU OF EDUCATION, PUBLICITY AND RESEARCH.

The Honorable Board of Fish and Game Commissioners
of the State of California.

GENTLEMEN: We have the honor to submit herewith the first biennial report of the Bureau of Education, Publicity and Research, covering the period from the institution of the bureau in September, 1914, to the end of the fiscal year 1915–16.

Organization.

At a called meeting held in San Francisco on July 5, 1914, your honorable board unanimously passed a resolution embodying the institution of educational and publicity work to be carried on by a suitable assistant who should be given the title of Game Expert and placed under civil service. In September, 1914, the present director assumed temporary charge of the new bureau and later qualified under civil service. A definite scheme of operation was immediately worked out and the bureau has followed in a general way the original plans laid down. The work accomplished has naturally been limited, owing to the fact that the duties fell upon one individual. An office was established at the Museum of Vertebrate Zoology at the University of California, where opportunities for undisturbed work and library and museum facilities were of the best. With the permission of your board the head of the bureau continued to hold a position with the University of California as Economic Ornithologist.

As the name of the bureau signifies, the work is of three kinds: education, publicity, and research. This report therefore will fall under these three headings.

Education.

Salisbury Wild Life Pictures. During the fall of 1914 the Fish and Game Commission cooperated in displaying throughout the state the Salisbury Wild Life Pictures. These films were obtained by E. A. Salisbury, director of the Educational Film Company of Los Angeles, in southern Oregon and northeastern California. In that the pictures illustrate the life histories of some of the common game birds and mammals of the state of California and vividly portrayed some of the fundamental aspects of wild life conservation, the commission felt justified in giving them support. For several weeks in the fall of 1914 the Director of the Bureau of Education, Publicity, and Research, traveled about the state giving lectures with these pictures and emphasizing wild life conservation. On a single trip alone in the San Joaquin Valley, over 10,000 people saw the pictures and heard the lectures.

The success of these films in eastern states and the comments upon them received from conservationists, have fully justified the effort made by the commission to place them before the people of this state.

Lectures. More than one hundred illustrated lectures have been given by this bureau in various parts of the state. These have advertised the wild life resources of California and have carried the message of conservation to farmers' organizations, women's clubs, Audubon societies, high schools, grammar schools, and boy scouts.

Fig. 61. Young mountain lions. From Salisbury's wild life pictures. (Courtesy Mr. E. A. Salisbury.)

A series of lectures was given during the spring semester of 1915 and again in 1916 in a course in advanced vertebrate zoology in the University of California, the students of which are prospective teachers. Several lectures were also given in a zoology course based largely upon the animal life of Berkeley and the Bay region. Through the cooperation of the forestry department of the University of California, a series of six lectures on game and game conservation was given during the spring semester of 1915 in a course on forest protection. These lectures reached many outsiders in addition to the fifty students registered in the course, for the series was open to the public. During the spring semester of 1916, a similar series of nine lectures was given before the 350 registered students in a course on general forestry and the many outsiders attracted by the publicity given the lectures. It is peculiarly fitting that forestry students in California should have a fundamental knowledge of wild life, for many of those entering forest service work in this state will become game wardens by virtue of their positions. The success of these series of lectures is in a measure due to Professor Walter Mulford, head of the Department of Forestry, who encouraged the institution of cooperative work, and to Dr. J. Grinnell, N. B. Scofield and T. I. Storer, each of whom assisted by giving one or more of the lectures. The results attained show that the subject of fish and game is of such general interest that a full course on fish and game given in the state university under the direction of the bureau would be productive of valuable results. With the incentive that such a course would give, many forestry students might become sufficiently interested to take up work as game wardens, and many university students would receive sufficient knowledge of game and game conditions to make of them valuable allies of game conservation.

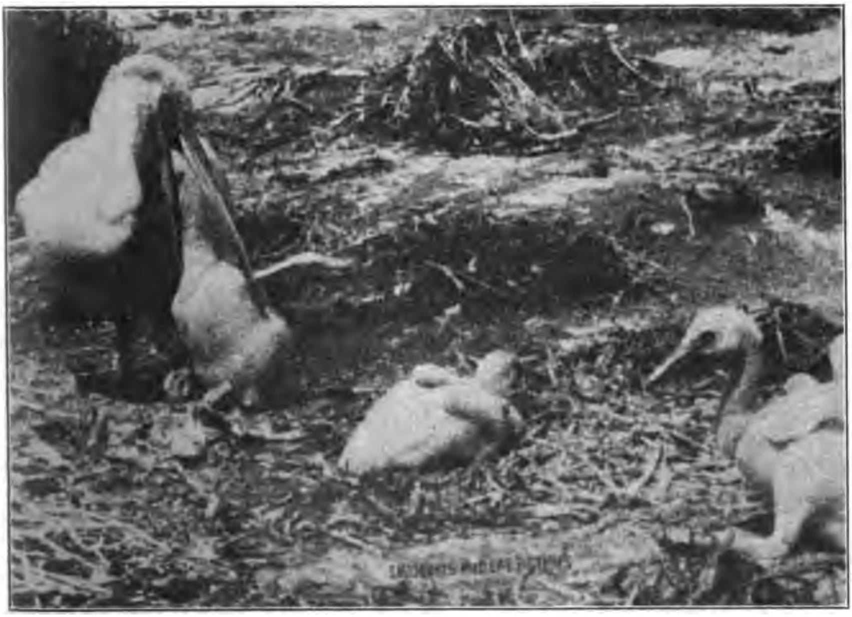


Fig. 62. White pelican feeding young at Clear Lake, Modoc County. From Salisbury's wild life pictures. (Courtesy Mr. E. A. Salisbury.)

In helping to make the students of our state university more familiar with our fish and game resources, we believe that we are carrying on fundamental work which will show abundant results in the future. University students have the opportunity to leaven the public sentiment of this state as regards wild life conservation, as no other group of citizens.

Recognizing that the understanding and sympathy of the child is fundamental to the successful attainment of the conservation measures of the future, effort has been directed toward the stimulation of nature study in the public schools. It has been found that, although nature study is a compulsory subject in our public schools, there are few places in the state where any pretense of adequately teaching this subject is made. In order to demonstrate the possibilities involved in work of this kind, the Director of the Bureau of Education, Publicity, and Research, addressed a meeting of teachers, and conducted several field trips in Sacramento. Classes of fifth graders were taken to the city parks and to the outskirts of the city, and were taught the names and habits of the different forms of life encountered. Partly as a result of this endeavor, nature study and trips afield have been permanently established in the public schools of Sacramento. It is hoped that other cities will soon recognize the value of teaching children to "read a roadside as they read a book," and will institute similar work. The ultimate goal, of course, is to have nature study supervisors in every city in the state, each with planned courses of study which shall include field trips where children may learn to study wild life at first hand. To this end proper training of prospective teachers is fundamental. When teachers are asked to take up nature study they either complain that they have not had the training to fit them for the work, or that no material is available. The attempt therefore is being made to stimulate interest in this phase of education in our normal schools, universities, and colleges, and to furnish, in the form of leaflets and bulletins, material which will be useful to such teachers.

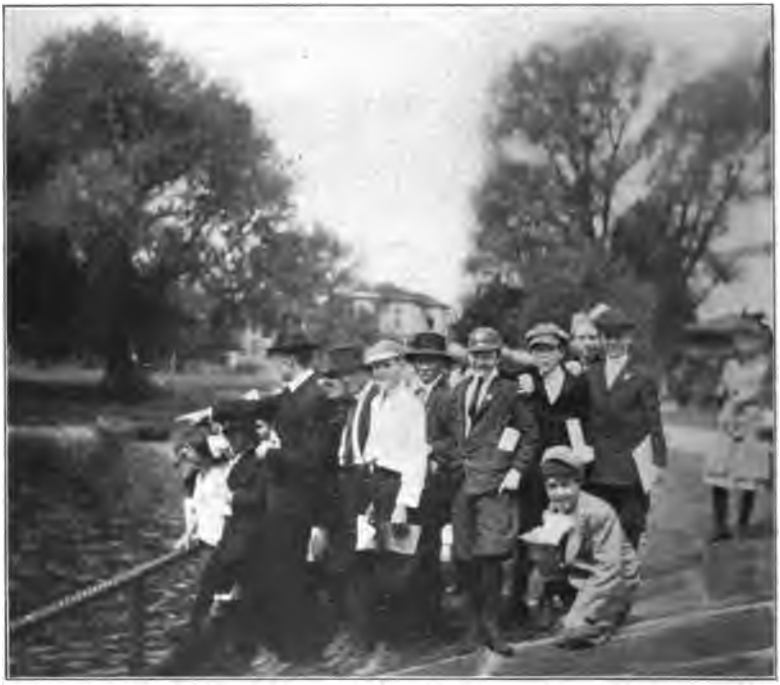


Fig. 63. Fifth graders of Sacramento public schools being taught the fundamentals of game conservation at Southside Park, where many waterfowl are to be found on the lake. Photograph by H. C. Bryant.

Outlines for courses of study in game resources and conservation methods have been prepared for women's clubs, boys' agricultural clubs and boy scout organizations. These will soon be available for distribution.

Boy scout cooperation—Believing that the boy scout is in a position to aid materially in the enforcement of fish and game laws and in the care and conservation of wild life, a cooperative arrangement has been instituted which will be of value to both the scouts and the commission. By cooperating with the commission the scout not only becomes a better citizen but prepares himself for the merit badge in conservation, requirements Nos. 2, 4 and 6 of the manual particularly specifying this kind of work.

Credit will be given boy scouts for the following types of work:

1. The dissemination of knowledge on the fish and game laws, the work of the California Fish and Game Commission, and on wild life conservation. (It would be of great aid to the commission if boy scouts would always take the opportunity to inform campers, hunters, and others with whom they come in contact, of the fish and game laws, warn them of their liability for violation of these laws, and report all violations to the nearest game warden.)
2. The finding and reporting of wild game which has been injured or destroyed in numbers either through natural or artificial means.
3. The systematic feeding of game during severe winters, or the encouragement of wild birds through feeding, the planting of cover, or the building of nest boxes.
4. The taking of a census of any one game species in a restricted area.
5. The destruction of predaceous animals injurious to wild life or the destruction of that worst of bird pests, the European house sparrow, usually called English sparrow.

In return for cooperation, the commission will award a prize (or prizes if necessary) of a pair of golden pheasants to the boy scout who does the most cooperative work. Scouts wishing to qualify for the above prizes are to report regularly on the work accomplished. If sufficient interest is shown in fish and game cooperative work a merit badge will be offered later by the commission.

To stimulate interest in this cooperative work and to interest scouts in game conservation a series of illustrated lectures and a series of field trips for the boy scouts in the Bay region is being planned.

Publications. The series of teachers' bulletins prepared by Miss Gretchen Libby while Educational Assistant of the Fish and Game Commission, have been in great demand, as has also her bulletin entitled "Bird study in the public schools," our supply of which is now exhausted. To augment the supply of printed matter for teachers, several articles have been published in CALIFORNIA FISH AND GAME designed mainly for their use, and teachers' bulletins No. 6, entitled, "Bats as Desirable Citizens," by J. Grinnell, and No. 7, entitled "The Control of the House Sparrow in California," by H. C. Bryant, have been added to the bulletin series for the use of teachers. The Bird and Arbor Day Manual for 1916, issued by the Superintendent of Public Instruction, contained several articles furnished by this bureau dealing with the wild life resources of the state, and with suggestions as to how these resources may be presented to pupils in the schools.

In order that those contributing to, and interested in, the conservation of wild life in California might receive direct information from the commission administering the wild life resources, the publication of a quarterly illustrated magazine entitled CALIFORNIA FISH AND GAME was begun. The motto chosen for the publication was "Conservation through education." The first number appeared in October, 1914. The October number, 1915, completed volume 1, a volume containing 261 pages and 58 illustrations. The departments regularly appearing were general articles, editorials, hatchery and fishery notes, conservation in other states, life history notes, wild life in relation to agriculture, and reports. The editor has taken pains to select only authentic contributions for publication and has eliminated as far as possible the imaginative and hearsay tales which so often appear in like periodicals. Such sentiments as the following have been editorially expressed in the magazine: the effectiveness of game preservation is governed by the interest of the people, and the spirit of those who hunt and fish; the recognition of scientific truths combined with a practical knowledge of the working of correct laws are essential things in the working of game administration; accurate statistical information is the one essential foundation upon which protective legislation must rest; nothing can be of more value to the cause of game protection at the present time than a systematic campaign of education conducted officially by the game department in every state in the Union. The second volume of CALIFORNIA FISH AND GAME, two numbers of which have already appeared, will surpass the first volume in the character of the illustrations and in the articles published. The periodical is sent to citizens of the state who make application, and to game departments and interested parties in other states. The demand for this publication has proved to be so great that the first editions numbering five thousand became inadequate, and later editions had to be materially increased. Nor does the information contained in CALIFORNIA FISH AND GAME reach only those to whom the magazine is sent; for newspapers regularly copy articles printed therein. More than seventy-five newspapers copied articles from the October, 1915, number.

Several public hearings have been held under the auspices of this bureau. Through meetings of this kind the commission is able to obtain an expression of public sentiment exceedingly valuable in the administration of game laws. Free discussion of the points at issue has in each instance resulted in a better understanding between the hunter and fisherman, and the commission (see Fig. 64).

Fig. 64. Interested listeners at a hearing on salmon and trout, held at Santa Rosa, February 9, 1916. Photograph by H. C. Bryant.

Publicity.

The bureau has relied largely on CALIFORNIA FISH AND GAME as a medium of publicity, but further efforts to gain publicity for the state's game resources and the work of the commission have been made. A series of twenty articles on "California Game Resources" was furnished the San Francisco *Call and Post*. This series dealt with various game fishes, birds, and mammals of California and the distribution, recognition marks, habits, status, and value of each for food and sport, was given. This series of articles was simultaneously published in the Los Angeles *Herald* and subsequently in about twenty other newspapers. The bureau stands ready to furnish any other newspaper with a similar series of articles. The bureau has also kept in touch with such central news agencies as the Associated Press and United Press, and numerous mimeographed news letters have been sent to all of the newspapers of the state. Evidence of the effectiveness of the news-letter plan of publicity is evident from the results of the campaign against the English sparrow. A news-letter giving details of the contemplated control of the sparrow sent to each newspaper resulted in the appearance of the item in more than 180 different newspapers. A follow-up news-letter on the same subject was also widely used. In many instances photographs and cuts have been loaned to newspapers and magazines.

This plan of conducting newspaper publicity by gathering and sending out news items from a central office is undoubtedly the most effective and desirable method of gaining publicity, and should be more largely followed in the future. Its advantages are that it allows of a wider circulation of the publicity item and of a closer and wiser censorship than is otherwise possible.

Research.

Careful attention has been given to the gathering and filing for reference of data on the game birds and mammals of the state. Many letters asking for information have been sent out and the district offices have cooperated by sending in useful information. The most detailed reports so obtained have been on the mourning dove, ring-necked pheasant, and beaver. A collection of photographs is also being accumulated. As a result, the bureau in time will have in its possession an invaluable photographic record of the present status of game and of the work of the Fish and Game Commission.

An attempt to increase interest in the fur-bearing mammals of the state has been made in the study of the fur trade in California, published under the title, "California's Fur-bearing Mammals." An historical survey demonstrated the decreasing worth of a once valuable resource, and the great need for legislation which will give complete protection to certain species and protection to all fur-bearers during the time when their fur is of no value. If the state of California wishes to conserve her fur resources, make them a source of income, and a heritage to pass on to future generations, she must fall in line with other states and better protect fur-bearing mammals.

A tabulation of the number of deer killed in the open seasons of 1914 and 1915 has been made. The reports of deputies and of forest officers showed that a total of 8,699 deer were known to have been killed during 1914, and a total of 8,343 in 1915. The fact that many deer killed are not reported by deputies and forest officers leads to the conclusion that at least 12,000 deer were killed during the open season of each of these years.

An attempt to obtain information in regard to hunting accidents in the open season of 1915 showed eight men to have been killed because they were mistaken for game, nine men to have been severely wounded, and seven to have been killed by the accidental discharge of a gun while hunting. The reports of accidents were necessarily incomplete, but they were sufficient to vividly show the criminal carelessness exhibited during each hunting season. It is important that the hunting fraternity understand that there is nothing accidental in the results attained when an object, the identity of which is in doubt, is fired upon.

In furtherance of the investigation of the food habits of nongame birds instituted in 1911, a study of the food of the roadrunner has been completed and a full report is in press. Eighty-three stomachs were examined and the contents identified. The results of the investigation have not sustained the oft-repeated accusation that the roadrunner is a destroyer of the eggs and young of valley quail. Although young birds are occasionally taken as food, there is no evidence that quail are preyed upon to the exclusion of other small song-birds. (See Fig. 66.) The bulk of the food of the roadrunner is made up of insects, especially beetles, grasshoppers, crickets and caterpillars. Lizards and snakes and mice comprise the larger part of the vertebrate food taken, but small birds are sometimes eaten (see Fig. 66). One

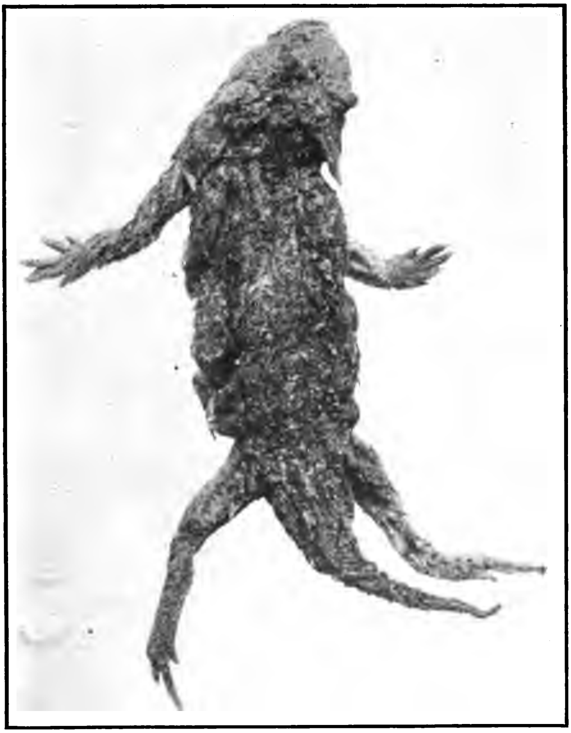


Fig. 65. A Blainville horned toad taken from the stomach of a roadrunner. Photograph by H. C. Bryant.

outstanding feature of the diet of the birds examined was the preponderance of one kind of vegetable food—the fruit and seeds of the sourberry, *Rhus integrifolia.* Large numbers of cicadas and several scorpions had been eaten by the birds. The roadrunner's relationship to the cuckoos is emphasized by its fondness for hairy caterpillars, many of which had been eaten. The lack of evidence as to the roadrunner's attacks on valley quail, plus the benefits conferred by it in the destruction of insect and rodent pests, plus its esthetic value, leave a balance distinctly in favor of the bird and make it a beneficial rather than an injurious species.

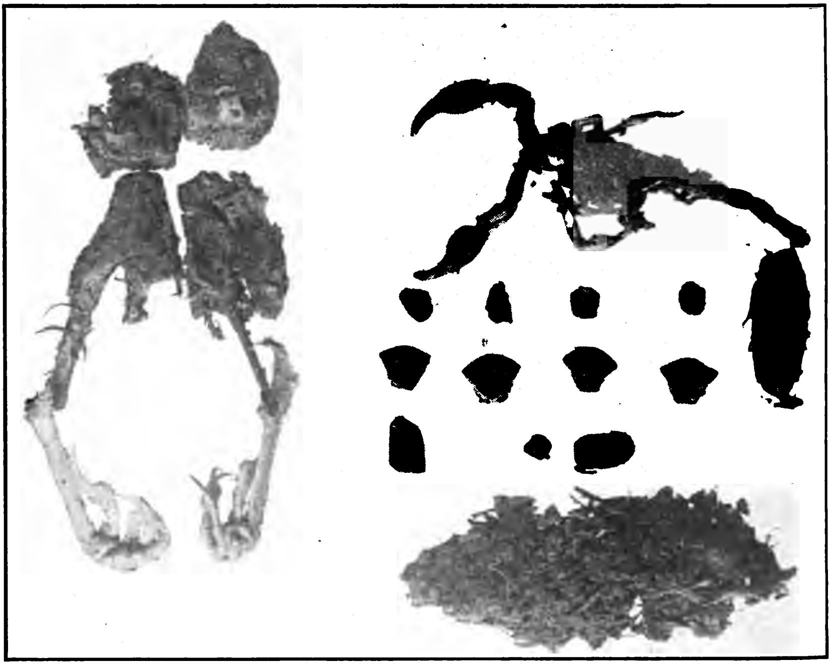


Fig. 66. Stomach contents of roadrunner, showing remains of an Anthony towhee, a scorpion and parts of several cicadas. Photograph by T. I. Storer.

A study is being made of the food of ducks in this state, with a view to the increase of the available food supply by artificial plantings and the furnishing of a means of attracting waterfowl. A large number of duck stomachs is at hand and many of these have already been examined and the contents of each recorded.

A study is also being made of attempts to acclimatize foreign game birds in California, with a view of discovering the reasons for success and failure, and of what may be expected from future trials. After a review of the history of the introduction of exotic species, it is quite evident that the results have not been proportionate to the money and energy expended. Two of the principal causes of failure appear to be the lack of careful investigation of the inherent factors limiting acclimatization and of the method of liberation. The successful establishment of a species has been found to be possible under favorable conditions, and ultimate success in acclimatizing foreign species therefore lies in careful experimentation. But though acclimatizing game birds is a possibility, it is an open question whether it is desirable to supplant native species with foreign ones. The native fauna is usually the most desirable, and the result of our finding seems to show that California should take a stand with other states in protecting her native game rather than attempting the introduction of foreign species. The valley quail is a better game bird than the pheasant or any other foreign species. Concentration on methods of conserving this bird is, therefore, more important than futile attempts at acclimatization. In the increasing stocking experiments carried on by individuals great encouragement may be found. Many people now successfully propagate quail in captivity and liberate the increase.

The present status of the beaver in California, according to data gathered in this office, is precarious. Colonies of this valuable fur-bearer are few at the present time, and give promise of becoming even more scarce. The Hudson Bay Company, when operating in California, beginning in 1828, secured thousands of beaver skins each year, and thereafter considerable numbers were taken each year by trappers. Since 1911, however, it has been necessary to give total protection to this animal, but even thus protected beavers do not seem to have increased to any considerable extent. The few scattered localities in which colonies are now to be found are shown on the accompanying map (Fig. 67). In the San Joaquin and Sacramento river basins, where beaver are most abundant, reclamation projects are fast driving them to starvation, or to more limited quarters. The total extirpation of the beaver in California is not far distant unless further measures are taken for its protection. The bureau plans to show the present status of many other game birds and mammals by means of distribution maps similar to that giving the distribution of beaver.

Considerable complaint that blackbirds damage rice has been received by the commission. Investigations show that the complaints are well founded. Some sort of control measures should be instituted and further investigations leading to the discovery of some practical method of meeting the situation are planned.

The chief forest deputies of the national forests of this state report annually to the commission the game conditions in their districts. These

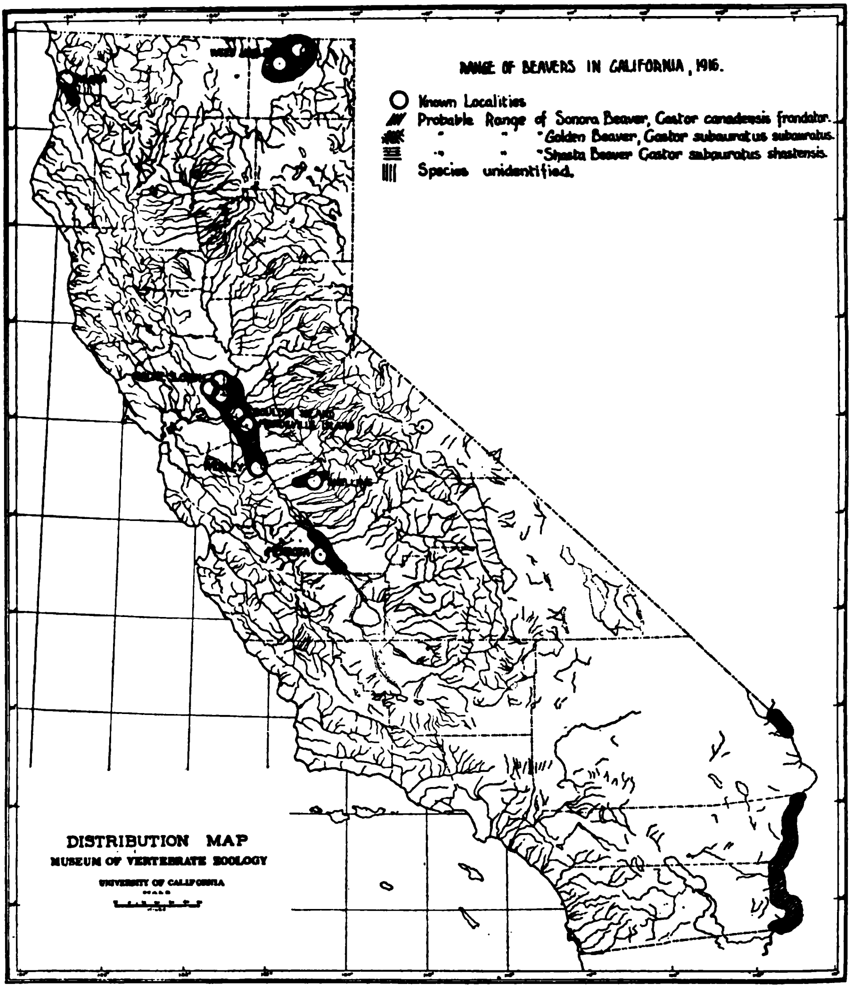

RANGE OF BEAVERS IN CALIFORNIA, 1916.
○ Known Localities
Probable Range of Sonora Beaver, Castor canadensis frondator.
" " "Golden Beaver, Castor subauratus subauratus.
" " "Shasta Beaver Castor subauratus shastensis.
Species unidentified.
DISTRIBUTION MAP
MUSEUM OF VERTEBRATE ZOOLOGY
UNIVERSITY OF CALIFORNIA

Fig. 67. Map showing distribution of beavers in California in 1916. Although once very numerous, few beavers are to be found at the present time.

reports afford much valuable information on the life history and status of the various species of game birds and mammals. Such items as demanded immediate attention have been investigated, and much of the information contained in the reports has been utilized.

A book on the game birds of California, in preparation under the auspices of the University of California Museum of Vetebrate Zoology, under the joint authorship of Dr. Joseph Grinnell, the director of this bureau, and Mr. T. I. Storer, is almost ready for the press. Although the routine work of the bureau has precluded continuous participation in the preparation of the manuscript during the past two years, all available spare time has been given to a furtherance of the project.

In addition to introductory chapters dealing with problems allied to the game birds of the state, full discussion of the distribution, life history and habits of every species of game bird found in California will be given, and the whole will be profusely illustrated. Whether the book is published by the Fish and Game Commission, or under other auspices, it should meet a long-felt need in that it will be serviceable to both the technical and nontechnical student, and will be useful as a sportsman's handbook.

In addition to the above researches, there have been a number of field investigations. The condition of the duck breeding grounds in the vicinity of Los Banos, Merced County, and Alvarado, Alameda County, were studied in 1915, with a view to determine the productive capacity of a given area of swamp land. A nesting colony of egrets near Crows Landing, Stanislaus County, was visited, as were also beaver colonies at Mendota, Fresno County.

The above have been some of the outstanding features of the many activities of this new bureau. In conclusion, we believe that the Bureau of Education, Publicity and Research, has justified its existence by its accumulation and output of accurate information regarding the wild life resources of California, and that a further expansion of the work would promote the interests of wild life and of the commission concerned with its conservation.

Respectively submitted.

(Signed) Harold C. Bryant,
In Charge Education, Publicity, and Research.

REPORT OF THE LEGAL DEPARTMENT.

To the Honorable Board of Fish and Game Commissioners

GENTLEMEN: I herewith submit to you a report of the work of the legal department of the commission for two years, ending June 30, 1916.

During this biennial period there have been many interesting legal matters which have come up in the work of the Fish and Game Commission. The period has been marked by the greatest number of cases ever made by the deputies of the Fish and Game Commission in any similar period of time. There has been more active help and cooperation from citizens than at any time in the past. In former years, it was practically certain that when a violator demanded a jury trial he would be acquitted, but at present in most parts of the state the chances are not greatly in his favor. In many instances jury trials have been won where the evidence was far from conclusive.

In July, 1914, in the District Court of Appeals in Los Angeles County, the case of *People* vs. *Mascola* came up on appeal. The attorney for Mascola contended that the Districting Act, which had been passed by the legislature in conformity with the constitutional amendment of 1902, was unconstitutional in that it prohibited the people of certain sections from doing that which was allowed in other sections. In the decisions handed down by the court the contention of the appellant was overruled but the title of the Districting Act of 1913 was declared faulty, and the act was set aside. In the decision it was also noted that laws must apply uniformly over each district and that it was not constitutional to except certain sections within the district. On account of this decision it was necessary to revise the Districting Act and to change many of the laws on the statutes. This was done at the 1915 session of the legislature.

One of the most difficult problems, and also one of the most important, that comes before the Fish and Game Commission is compelling canal owners to maintain fish screens in irrigating ditches and to construct and maintain fish ladders over dams. In many instances long and bitter litigation has been carried out.

Before fish screens that would operate under all conditions had been perfected, it was practically impossible to compel the installation and maintenance of screens. At the present time, however, screens have been developed that will operate under any and all conditions and there is not a canal in the state in which it would be impossible to maintain a proper screen.

During November, 1915, the canal companies owned or controlled by the Fresno Canal and Irrigation Company were notified that they would be required to screen their ditches in such a way that all fish life would be prevented from passing into the canals. After notice was given the companies through their attorneys, they demanded a hearing, as provided by the statute passed by the legislature in 1915. Hearings were held in Fresno during January of this year. The testimony showed that great numbers of fish found their way through the canals and were destroyed. Upon the evidence introduced at this hearing, the commission ordered the companies to install screens in the Fresno ditch, Riverdale ditch, Kings River ditch, the Fresno Canal Company's ditch, Consolidated Canal Company's ditch and the Fresno Canal and Irrigation Company's canal. The companies failed to conform with this order and complaints were sworn to in the Justice's Court of Fresno County, and are now pending.

Numerous hearings have been held under the provisions of the sections of the code relating to screens and fish ladders. In the majority of instances entirely satisfactory conclusions have been reached without it being necessary to resort to the courts.

In March, 1915, John C. Robbins, of Tehama County, an unsalaried deputy of the Fish and Game Commission, was arrested by Forest Ranger Harvey Abbey for killing deer during the closed season. Robbins demanded a jury trial, but was convicted and fined $150 by Justice Lennon of Red Bluff. The District Court of Appeals was asked for a writ of habeas corpus questioning the validity of the judgment of the Justice. The writ was denied and the judgment of the Justice's Court affirmed.

In April, 1915, Fred W. Robins, another unsalaried deputy, living in Santa Clara County, was arrested for angling without a license. He demanded a jury trial before Justice Simpson of Almaden; was convicted and sentenced to a fine of $50 and to serve ten days in jail. He appealed to the Superior Court, but this higher court affirmed the judgment of the lower court.

From time to time in the past it has been reported to the Fish and Game Commission that considerable numbers of striped bass were being shipped to various points outside of the state, in violation of the state law prohibiting the export of striped bass. In March, 1916, very reliable information was received and one of the deputies of the Fish and Game Commission was sent to Salt Lake to make an investigation. As a result of his investigations, A. Paladini was arrested on a number of charges and was convicted in the Police Courts of San Francisco, being fined $100. An appeal was taken and the case is still pending. At the same time a number of other charges were filed against Paladini. These are being held subject to the appeal in the case mentioned.

In November, 1914, Deputy George J. Rodolph, while engaged in patrol duties in the vicinity of Los Banos, attempted to arrest Len

Cisco and Earl Farnsworth for violation of section 626*n*. Cisco and Farnsworth resisted arrest and Rodolph was shot in the back after Farnsworth had been wounded by him. Rodolph died almost instantly. Both Cisco and Farnsworth were charged with murder. Cisco was discharged at the preliminary examination and Farnsworth held for the murder. He was tried in Merced in June and was acquitted by a jury. In our judgment the verdict was a gross miscarriage of justice. Rodolph sacrificed his life in the service of the state and should be enrolled among those to whom the state owes all honor.

During the early summer of 1915, the H. N. Welch Company, a corporation organized under the laws of the state of Utah, made several shipments of trout from Salt Lake City, Utah, to Los Angeles, that were not in accordance with the laws of the state of California. These shipments were seized by deputies of the commission. The Utah Company brought suit against the Fish and Game Commission in the United States District Court at Los Angeles and asked for an injunction restraining the commission from interfering in any way with shipments of trout, contending that the act was unconstitutional, citing numerous authorities in support of their contention. In June their motion for a temporary injunction was argued and denied. Later in the same month the whole action was dismissed. It was said that the Welch company would appeal to the Supreme Court, but this was never done.

This case was one of the most important that has come up in the history of the commission. If the complainants had been upheld in their contention, it would have been the most severe blow that could have been given to the game interests of the state, as it would have been necessary for the Fish and Game Commission to prove in every instance that the game or fish possessed unlawfully was not brought from without the state.

A number of prosecutions have been begun against oil and gas companies for polluting the public waters of the state and in almost all instances the evil has been remedied by the companies. In cooperating with the commission, companies have installed the latest devices to prevent future pollution.

This department has given many decisions interpreting the fish and game laws of the state, and has written hundreds of letters answering inquiries regarding the construction of the fish and game laws.

During the two fiscal years just ended, the number of arrests was 2,087 and the number of convictions 1,747, or $83\frac{7}{10}$ per cent convictions. The per centage of convictions for fish and game violations is higher than any other class of cases of like degree. In all instances of criminal violations of a particular class the imposition of punishment is measured by the sentiment of the people toward the enforcement of that particular class of laws. The large percentage of convictions in fish and game violations indicates most strongly the growing sentiment of the people toward conservation of the fish and game of this state and their strong desire for the strict enforcement of the laws pertaining thereto.

In a large percentage of cases fines are imposed and in some instances jail sentences without any alternative are inflicted on violators, which shows the increased cooperation between the commission and the justices of the peace in the enforcement of the fish and game laws.

Respectfully submitted.

ROBERT D. DUKE,
Attorney for the Board.

Dated: October 20, 1916.

REPORT OF FIELD AGENT.

The Honorable Board of Fish and Game Commissioners
of the State of California.

SIRS: With the closing of the fourth administrative district office, March 1, 1916, your honorable board established the former head of the Fresno Division in the position of Field Agent. The prescribed duties of the Field Agent were to represent the commission throughout the state, to correctly inform the commission of conditions affecting the fish and game interests in every portion of the state, and to supervise, in an advisory capacity, the activities of the deputies. It was believed that a Field Agent in circulating among the deputies would be of much assistance to them in solving their individual problems, in explaining the various rules and regulations of the board, and in bringing about a universal standard of efficiency throughout every section of the state.

The idea has been welcomed by the field force. Many deputies stationed in territory far removed from district offices have had small opportunity for receiving training and instruction as to how to satisfactorily comply with the rules and regulations regarding operations of field deputies. Very naturally, many problems arise in the daily life of the deputies which they find hard to solve according to the ideals of the commission, and to be able to confer on the ground with some official who can speak authoritatively, appeals to the deputies as a valuable privilege.

The general public too, apparently enjoys presenting its ideas to some one who can inform them of the commission's attitude and who, in turn, will directly carry the views of the public to the commissioners.

Among the investigations carried on have been the following: A market fisherman at Redding had been using a set-line for several years and had successfully defied the efforts of the commission to suppress his operations. A warrant was secured from the district attorney and the violator is now under bond. Oil pollution of the Sacramento River near Dunsmuir was investigated. Certain license matters have been adjusted with county clerks. Many forest service headquarters have been visited and the friendship existing between the Forest Service and the Fish and Game Commission cemented and better cooperative working conditions promoted. The commission has been officially represented at the meeting of the County Supervisors Convention, held at Redding, the Fresno Commercial Club and at several other conventions. Assistance has been given the Fresno Playgrounds Commission in the attempt to secure from the Forest Service permission to secure a playground site at Huntington Lake in the mountains of Fresno County. The initial plans of the Playgrounds Commission involve the taking of 5000 children into the high mountains annually. Furthermore, the Fish and Game Commission has been invited to instruct the children at the camp regarding wild life conservation.

A large section of the state has been covered, people met, complaints heard and information given regarding the activities of the commission.

The activities of the commission have been given publicity through a weekly column which has been edited in the San Francisco Bulletin.

The best work we have done, so far as we can judge, has been among the outside deputies. Their various problems have been solved or at least explained so that they can work independently. Each deputy with whom we have come in contact has been studied and an effort made to make him more useful to the state. The men all seem to be well pleased at the new order of things and they have gladly laid all their problems before us and have received our instructions with every evidence of appreciation.

It is the almost universal rule that the field deputies of this commission are very anxious to get results and to live up to the standards which the commission has set for them. The average deputy finds it hard to comply with various orders sent out by the head office in the manner expected by the commission. In justice to the deputies, account should be taken of the fact that the average patrolman who is in the field all day and has his mind upon his next day's work during his waking hours, is not in a position to do good work in the way of making reports and complying accurately with some of the orders sent to him. As a matter of fact, he often has small time to seriously study some orders which are to him a little unusual. We have been of material assistance to the fieldmen in showing them how to comply with such instructions.

Very naturally, the scope and importance of the work of the Field Agent will be enlarged and the value of the results accomplished can be judged to better advantage after the work has been under way a longer period of time.

Respectfully submitted.

(Signed) A. D. FERGUSON,
Field Agent.

REPORT OF SUPERINTENDENT OF STATE GAME FARM.

The Honorable Board of Fish and Game Commissioners.

GENTLEMEN: For the past two years the commission has been on the verge of abandoning the Game Farm. Difficulties with the owner of the land upon which the Game Farm is located, the fact that the commission feels that sufficient attempts to stock the state with pheasants have been made, and the general unfitness of the location for the work, each have contributed to this situation.

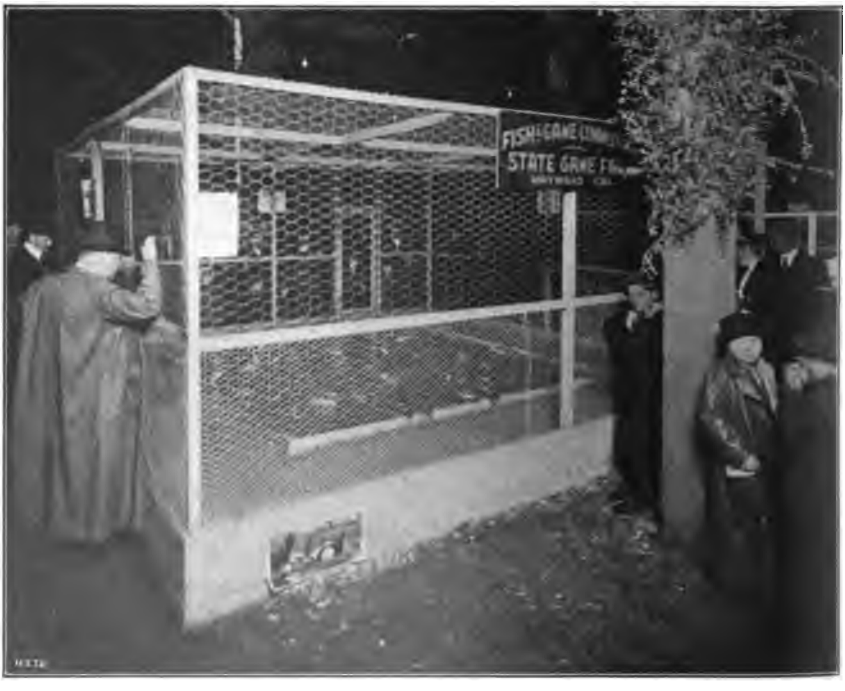


Fig. 68. Exhibit of State Game Farm at Children's Pets Exhibition, held at the Panama-Pacific Exposition, 1915. Photograph by Cardinell-Vincent Company.

Being unable to satisfactorily terminate the lease in 1915, your board decided to maintain the farm as an experimental station, devoting energy to the rearing of game indigenous to the state, such as valley quail, ducks and deer. Working under the above handicap, we have been unable to attain results which could have been attained under more favorable circumstances. Beginning with the fiscal year 1916, the surplus stock will be offered to breeders. Thus it is intended to make the Game Farm in a measure self-supporting.

Pheasants.

During the season of 1915, we had poor success with pheasants. Whereas a few broods did well and matured into fine birds, others were weaklings, more than half of which died during the first ten days. We can advance no reason for this, as the birds were hatched from the same parent stock. For example, we brooded two lots of chicks side by side on a grass plot, each brood being hatched twelve days apart from eggs laid by the same birds. Each lot was given the same attention, like food, and brooded in identical outfits. Out of one lot of 192 we reared 157; out of the other of 265 we lost over 200. As the birds were forced to lay so many more eggs during an extended period in captivity than they do in the wild state, there may be times when the germ becomes weak. In view of the fact that this is one of the very few states, possibly the only one, that uses artificial brooders exclusively, we can not ascertain whether or not this result is due to the (artificial) methods used. However, from results obtained during former seasons when domestic hens were used for brooding, we feel safe in stating that, while there is room for improvement in our method, it will be more generally adopted as pheasant breeding progresses.

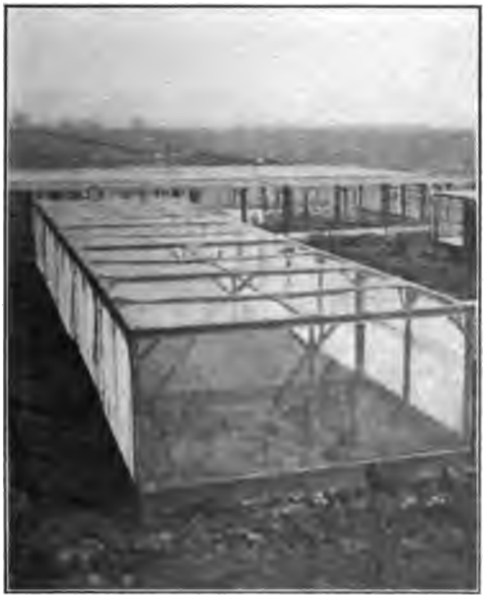


Fig. 69. Portable pens used for breeding quail and pheasants, State Game Farm, Hayward, California. Photograph by W. N. Dirks.

Feed.

During the 1915 season we devoted several hours each day to the preparation and grinding of food for the young birds, using greenstuff, such as lettuce, kale and beets, all of which was grown on the farm, together with cracked wheat, stale bread, hard-boiled eggs and cooked chopped meat. While the birds apparently relished this food, the results did not justify the time and energy expended.

During the 1916 season the birds were brooded on a lawn, thus affording them plenty of greens. Plain dry feed consisting of cracked wheat, cut oats with a sprinkling each of charcoal, ground green bone and oyster shell, which required practically no time to mix, was fed them. The birds appeared to do just as well on this dry mixture, which is more preferable, as it does not become stale and sour.

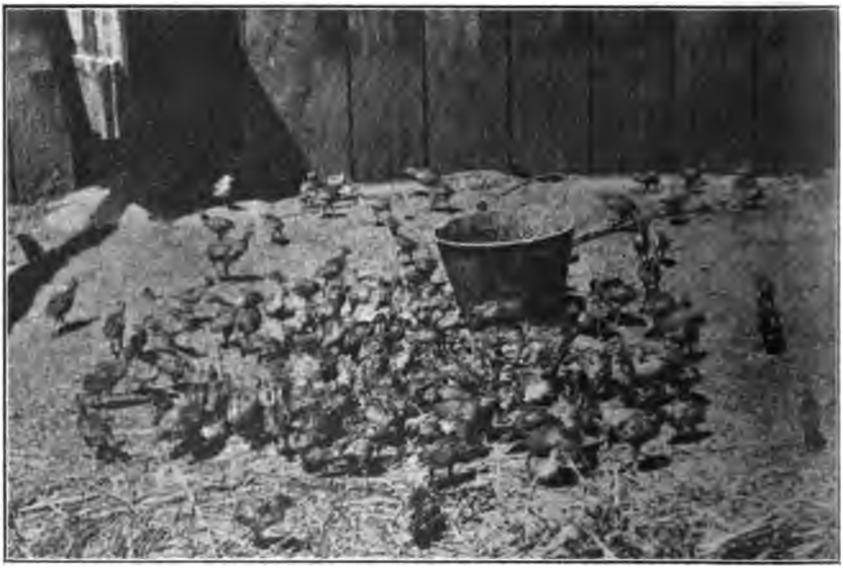


Fig. 70. Young pheasant chicks at State Game Farm. Photograph by W. N. Dirks.

Exhibitions.

The commission has exhibited the birds from the Game Farm at various poultry shows and county fairs. This has been done for the purpose of advertising the activities of the commission in the propagation of game and to educate people regarding opportunities in the breeding of pheasants, ducks and other game birds, both for stocking and for food purposes. Much interest was developed by these exhibitions, especially by those which were held at the State Fair and the Panama-Pacific International Exposition. At the Exposition there were displayed several varieties of quail, pheasants and ducks, the exhibit occupying a floor space of 12 by 100 feet. From the keen interest displayed at this exhibit, there appears to be a wide field for work of this nature. It gives those interested in hunting an opportunity to realize the beauty and variety of wild life, at the same time creating a more generally intelligent understanding of the work of the commission.

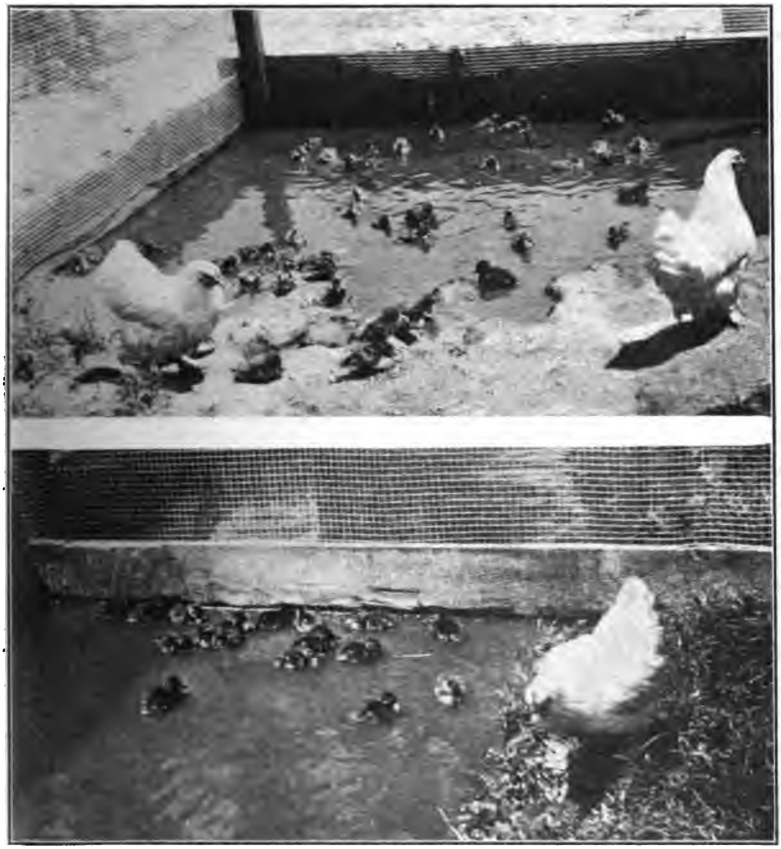


Fig. 71. Ducklings and their foster-parents at State Game Farm. The ducklings were hatched from eggs collected in nearby marshes and from those deposited by captive ducks. Photograph by W. N. Dirks.

Breeding Stock.

The breeding stock at the Game Farm on July 1, 1916, was as follows:

Valley quail, including young stock	350
Mountain quail	15
Bobwhite quail	20
Golden pheasants, including young stock	17
Silver pheasants, including young stock	14
Ring-necked pheasants, including young stock	140
Ducks (13 species, including fulvous tree-ducks)	575
Geese (4 species)	9
Coots	10
Great blue heron	1
Total birds	1,151
Black-tailed deer	2
Mexican white-tailed deer	1
Total mammals	3

Time will show whether or not the efforts of the commission respecting the planting of pheasants has been worth while. That they are firmly established in some localities appears certain. In the Santa Clara Valley, for instance, it is not an uncommon sight to see two or three pheasants foraging in the fields along well-traveled roads. On April 4, 1916, Deputy I. L. Koppel and myself put up a total of 15 pheasants at different points between Coyote and Milpitas. Although parts of the Santa Clara Valley seem to meet the requirements of the birds, certain factors will probably prevent them from ever becoming overabundant. Being very partial to moist ground, pheasants choose alfalfa fields in which to nest. As nesting occurs at a time when the hay is being harvested, a great many nests are destroyed. Through the efforts of Deputy Koppel, the Game Farm obtained a number of eggs from destroyed nests. Thirteen eggs taken from a nest of seventeen on April 22, 1914, hatched on the 24th. Eleven birds were reared to maturity, although these eggs were five hours on the trip. During the season of 1916 a total of seventy eggs taken from nests destroyed while mowing hay were received at the Game Farm. This justifies the adoption of some feasible plan whereby more of the eggs from destroyed nests could be utilized.

Fig. 72. Fulvous tree-ducks on pond at State Game Farm. Photograph by Theodore Kytka.

Quail.

Quail are brooded and fed exactly the same as the pheasants, but there is no resort to bantams for incubating the eggs. While we have had very poor success in artificially incubating the pheasant eggs for the entire period, the result is quite the contrary with quail, 90 per cent of the fertile eggs often being hatched. As the quail chicks are very tiny, it is a problem to obtain a brooder that will afford them sufficient heat, especially during the night. All brooders are planned and made to meet the requirements of young chickens. As the quail are many times smaller, it follows that they are much farther away from the heat-giving device. With a coal oil brooder the flame can not, with safety, be carried high enough to supply sufficient heat to the quail three inches below the bulb of the thermometer, which is set to register the temperature suitable to the chicken. To partly offset this condition we have raised the floor with burlap padding, bringing the birds closer to the heater. Quail themselves can best care for the chicks, but they must be penned up in individual cages made of small mesh wire and not be disturbed in order to have them successfully raise their own broods. Since this method is expensive and but few birds can be reared, it is probable that rearing quail for the market will never become a paying proposition. The only feasible plan that presents itself to conserve this bird is to locate a game farm in natural quail territory, absolutely protect the birds, and when the increase warrants it, trap and ship them to depleted localities. The future existence of this very desirable bird demands that steps be taken toward this end in the near future.

Fig. 73. Canada geese at State Game Farm. Photograph by Theodore Kytka.

Ducks.

From the modest number of three ducks, we have gradually accumulated, through trapping, taking eggs in the marshes and through the increase of our own stock, several hundred ducks. Fourteen varieties are represented which, with four varieties of geese and a number of coots, make an excellent collection of waterfowl. During the season of 1915 several mallard hens nested and successfully reared broods, taking the young ducks on the pond as soon as they were sufficiently dry. Our one cinnamon teal hen also nested and hatched nine young, but did not rear a single bird. During the present season, out of a total of twenty-six mallards nesting, the average of eggs was only five.

After several hens had lost their entire broods within a period of a few days, all of the eggs in the pens were gathered regularly and set in incubators. The ducklings were given to domestic hens to rear. If we had expected to operate this season necessary preparations would have been made for the proper handling of these birds. As it was, too many were confined together. One of the very peculiar features of these birds was brought out this past season when one shoveler out of a total of twenty hens that we have had for three years nested and hatched for the first time. None of the other species of ducks have nested. We have successfully retained several fulvous tree-ducks on the farm for the past two years. These birds have attracted a great deal of interest.

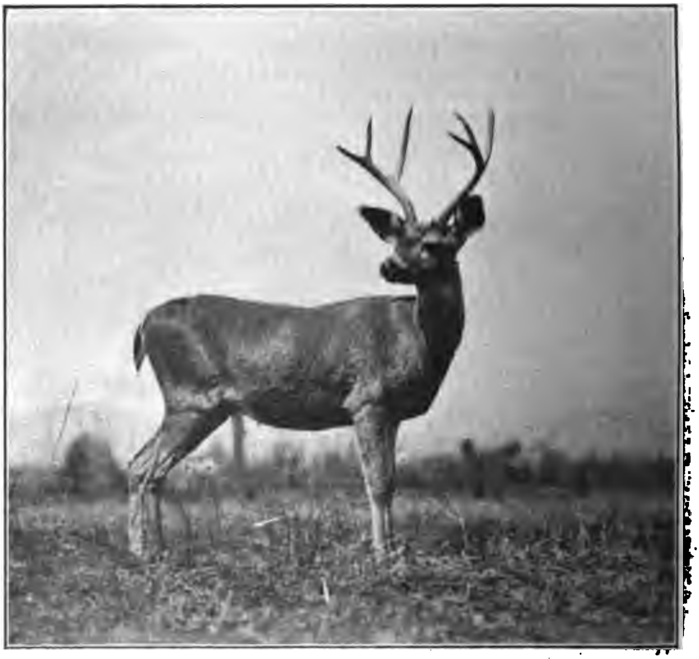


Fig. 74. Black-tailed deer at State Game Farm, Hayward, California. Photograph by Theodore Kytka.

Deer.

Several black-tailed deer which were on the farm for a number of years were disposed of in the fall of 1912. Since that time two deer of the same species have been secured and have found a home on the farm. One of these, a spotted fawn, has been successfully reared on a bottle. A Mexican white-tailed deer fawn has been the only other addition to our stock of game mammals.

Respectfully submitted.

(Signed) Wm. N. Dirks,
Superintendent State Game Farm.

REPORT ON POLLUTION OF WATERS.

The Honorable Board of Fish and Game Commissioners.

Gentlemen: The importance of keeping our streams and bays free from substances injurious to fish is conceded by all. Fish have a sufficiently hard struggle for existence without man contributing additional difficulties in the form of injurious waste products. Furthermore, fish which might not suffer from contact with, or absorption of, such substances, may face starvation because the plankton upon which they feed has been destroyed by pollution. It can, therefore, be considered a signal victory that section 635 of the Penal Code was so amended at the last legislature that it now includes practically all sources of water pollution.

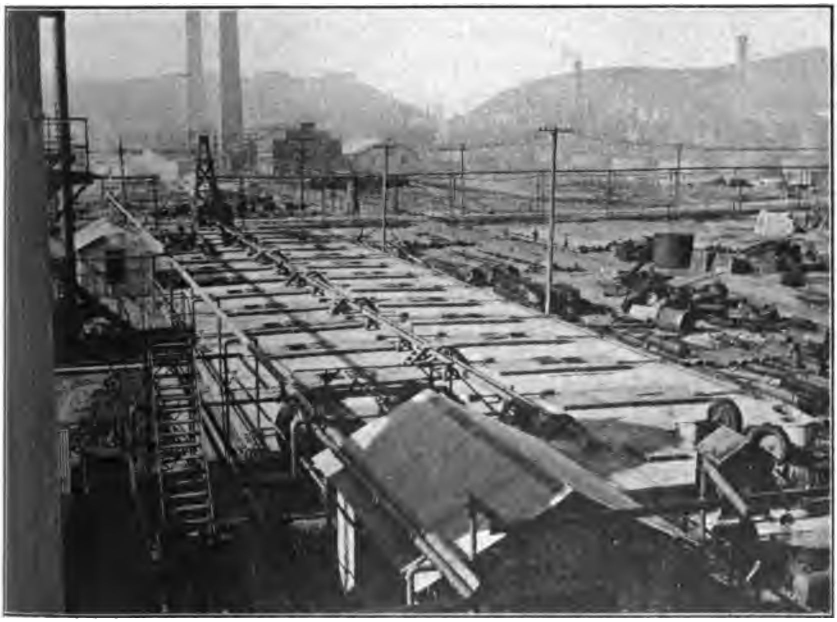


Fig. 75. Birdseye view of main separator of the Standard Oil Company plant at Richmond. The capacity is 20,000,000 gallons of waste per day. Photograph by A. M. Fairfield.

The most common sources of water pollution with which California has to contend are: refuse from wineries, wash-water containing leaves, rootlets, etc., from the beet sugar factories, lampblack and tar from gas plants, and fuel oils and sludge from steam vessels, refineries, and other industries which use oil as a fuel. The refuse from the wineries and beet sugar mills decomposes and ferments very rapidly after it is deposited in the water, forming carbonic acid gas which is deadly to fish life.

Particular attention has been paid to pollution by oil and lampblack. The problem confronts the gas companies of devising a rapid and continuous filtering system which will retain *all* of the lampblack and thus allow the water to return to the bay or stream perfectly clean. The magnitude of this undertaking will be better realized when it is understood that an average of twenty-two pounds of lampblack is produced to each thousand cubic feet of gas, and that San Francisco alone, during the month of January, 1916, manufactured 613,947,000 cubic feet of gas, and about 4000 tons of lampblack.

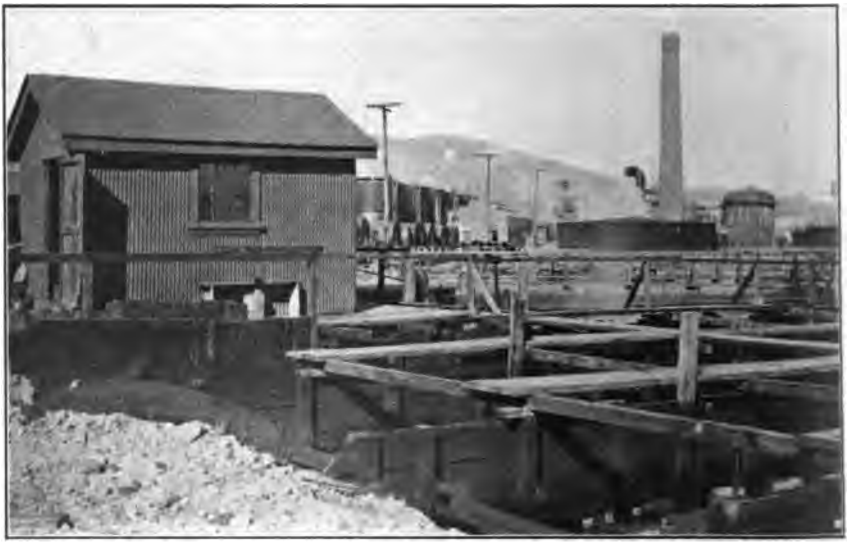


Fig. 76. Detail view of baffles of the Standard Oil Company plant at Richmond. The oil collects behind the baffles and is skimmed and pumped back into the separator. Photograph by A. M. Fairfield.

To meet this situation the Pacific Gas and Electric Company has, in the bay counties alone, spent not less than $100,000 during the last two years. The old system of settling pits, which required a large area to operate successfully, has been finally and definitely abandoned, and attention turned to newer devices. All known filters have been tried with more or less success. Straw filters were found to work very satisfactorily where the lampblack production does not exceed 5000 pounds per day, and a model filter of this type was installed in the Vallejo plant. In the larger plants this filter is too slow and expensive. A straw filter similar to the one at Vallejo, but of less capacity, is under construction at Napa.

The three best known types of mechanical filters for handling lampblack are the Oliver, the Kelley, and the Butters. All of these originally were devised for use in mining operations, but with some changes and improvements have been adapted for use with lampblack.

The Oliver filter, the most expensive and complicated, has proved the least satisfactory. One of this type is in operation at the Metropolitan plant of the Pacific Gas and Electric Company in San Francisco, and in Los Angeles, but it is unlikely that any future installations will be made.

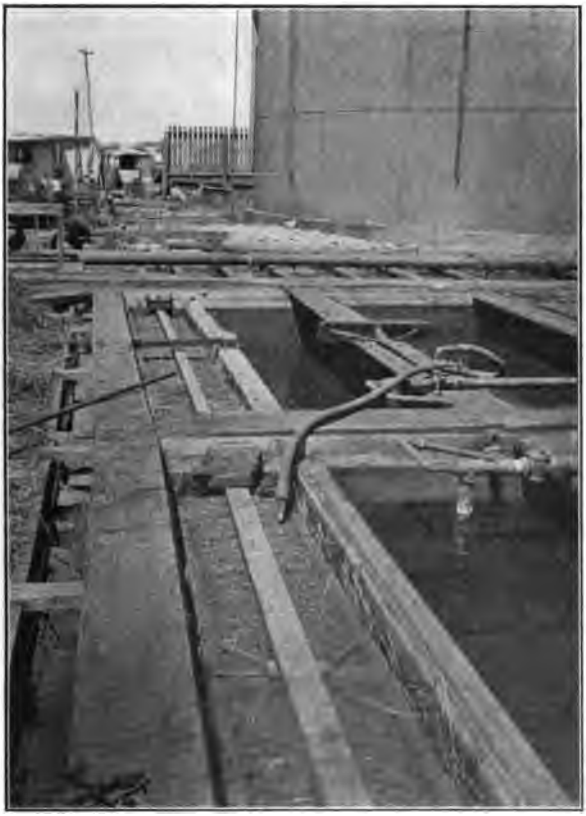


Fig. 77. Superior type of straw filter of the Pacific Gas and Electric Company at Vallejo. Photograph by A. M. Fairfield.

The Kelley filter has passed the experimental trial successfully and a battery of three of the largest size has been ordered for use at Station "B" in Oakland. The cost will be $29,100.

The Butters filter has so far proved the most effective and economical device. Its low first cost, the economy of its maintenance, and its ability to discharge water absolutely free from lampblack, added to the fact that it can be made in any size from a unit of one or two leaves up to any number needed to handle the maximum lampblack output of any plant, makes it by far the most effective and popular installation.

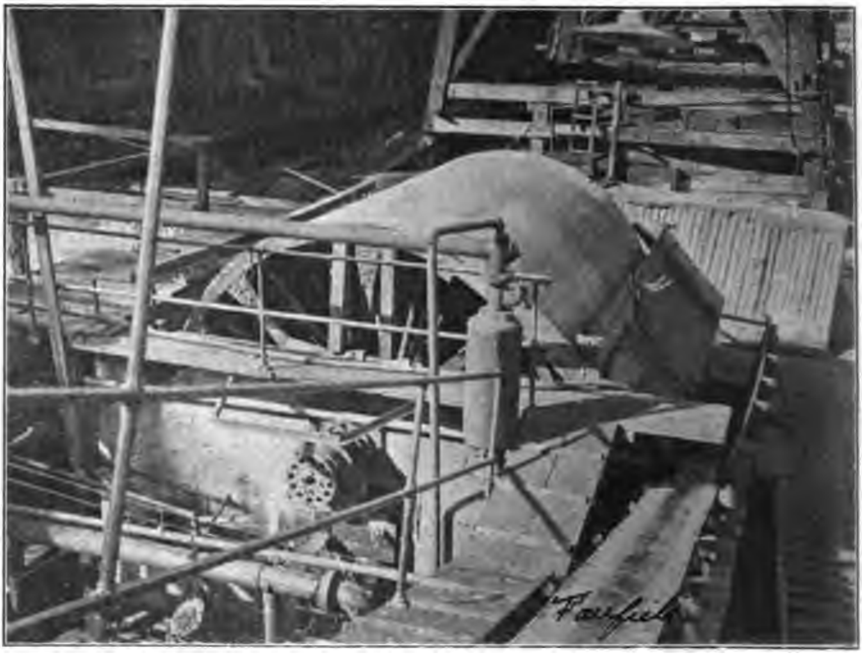


Fig. 78. Oliver filter at the Potrero plant of the Pacific Gas and Electric Company, San Francisco. Photograph by A. M. Fairfield.

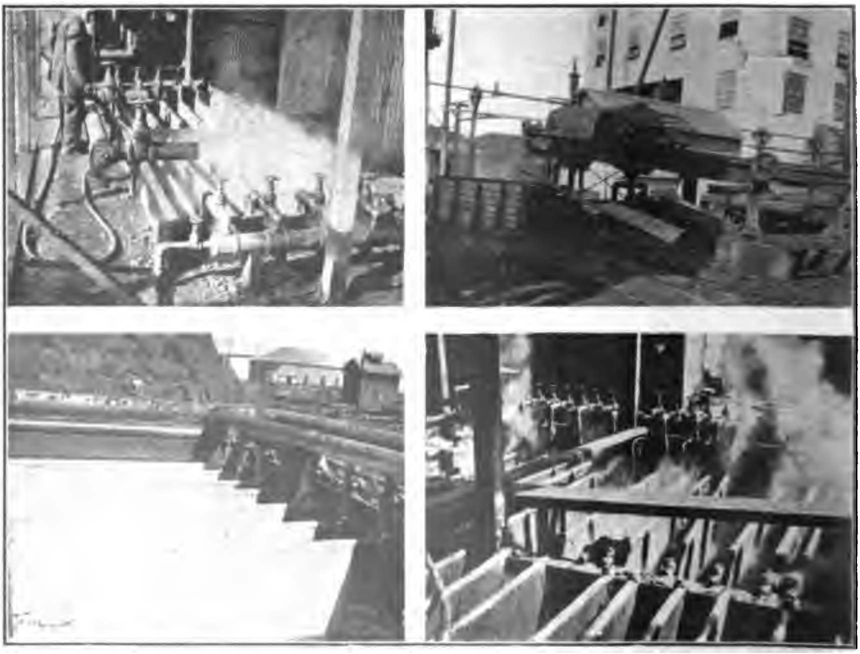


Fig. 79. Kelley filter-press of Pacific Gas and Electric Company at Oakland. Butters filter at San Jose. Butters filter, Potrero plant of Pacific Gas and Electric Company at San Francisco. Butters filter at Oakland. Photographs by A. M. Fairfield.

This type was experimented upon, some changes and improvements effected, and the perfected and model installation made by the engineers of the Oakland plant of the Pacific Gas and Electric Company. Butters filters are now in use in Oakland, San Jose, San Francisco (Potrero plant), and Santa Rosa. The Pacific Gas and Electric Company plans to install this system also at San Rafael and Vallejo, and will in time use it in all plants making 200,000 cubic feet or more of gas per day. Butters "leaves" are also being used in the dewatering box of the Oliver filter at the Metropolitan plant of the same company in San Francisco. The Western States Gas and Electric Company has been advised that an adequate filter must be installed at its Stockton plant. They will, undoubtedly, choose the Butters filter, as being the most efficient and economical.

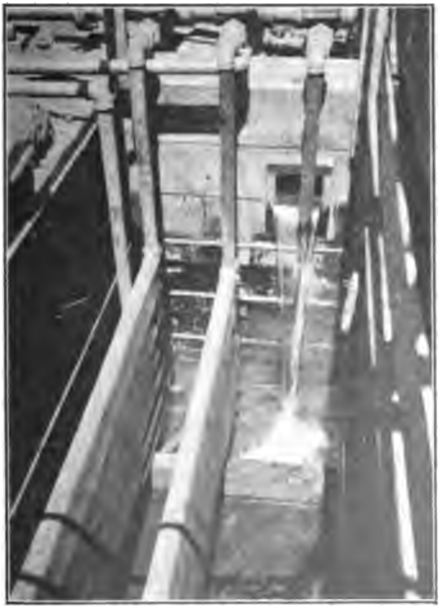


Fig. 80. Butters filter at Santa Rosa. Handles lampblack from 375,000 cubic feet of gas per day. Photograph by A. M. Fairfield.

The leakage of oil into our waters is a serious source of danger to fish, and the efforts to avoid this danger entail the expenditure of large sums annually. Oil is most frequently discharged in the waters of California because of accident, due to the breaking of pipe line, or the bursting of a hose of a tank vessel being loaded or discharged. Such accidents are deplorable and often cause great damage. When the Standard Oil Tanker Bradford went aground on the San Francisco bar it was necessary to jettison 2000 barrels of oil in order to float the ship.

The Standard Oil Company at Richmond has spent over $105,000 in the construction of separators and canals to trap waste oils and sludge. Of this amount $50,000 has been expended during the last two years. The main separator is built of concrete, is 240 feet in length, 70 feet in width, and 22 feet in depth, handling 20,000,000 gallons of water and oil daily. Fifteen men are required to attend to the separators to skim oil and handle tidal gates. The monthly pay roll of these men is $1,500. In addition to the concrete trap there are about one and one-half miles of ditches, averaging thirty feet in width, equipped with baffles to catch any oil which might not otherwise be trapped. These ditches also handle the 10,000,000 gallons of water which pass through the asphalt plant daily. All valves on oil lines on the wharf are supplied with tubs to catch the drip, and loading hoses are drained into drums. The accumulation is then pumped back into the refinery.

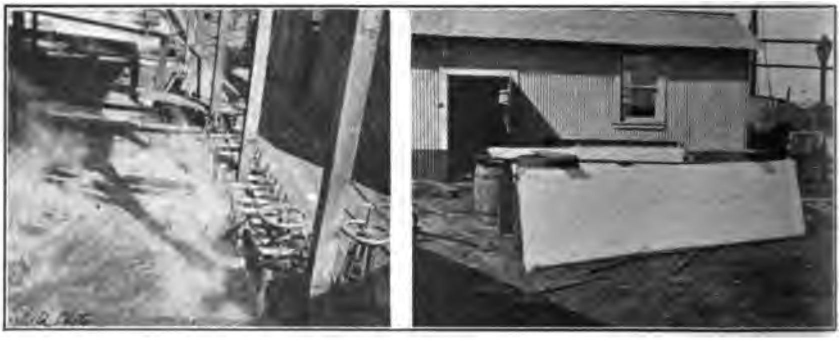


Fig. 81. Butters filter and filter leaf at plant of Pacific Gas and Electric Company at Oakland. Photograph by A. M. Fairfield.

The Union Oil Company has expended several thousand dollars in construction and repair work at the Oleum refinery, and contemplates further expenditures of some $25,000. The company plans to continue its work until satisfactory conditions are obtained.

The Shell Oil Company has built adequate oil traps at the new refinery at Martinez and no trouble from the disposal of waste oil is expected.

The Associated Oil Company has ample settling area for waste oils on its property at Avon and has experienced no difficulty in keeping such waste out of state waters. This company, as well as others, has agreed to notify the Fish and Game Commission immediately by telephone when accidents occur which result in the depositing of oil upon any waters, thus giving the commission an opportunity to make immediate investigation of the cause of such accident, and to estimate the probable damage.

The Southern Pacific Company has installed concrete traps 10 by 15 by 60 feet at San Luis Obispo, Watsonville Junction, San Jose, and San Francisco, and these are in successful operation. The San Francisco installation cost about $4,000, but we have been unable to ascertain the cost of the others. The Western Division has built two new traps in the West Oakland yards during the year past, at a cost of about $1,500, which they propose to enlarge to about four times the present area. The monthly pay roll of the trap tenders at present is $110.67.

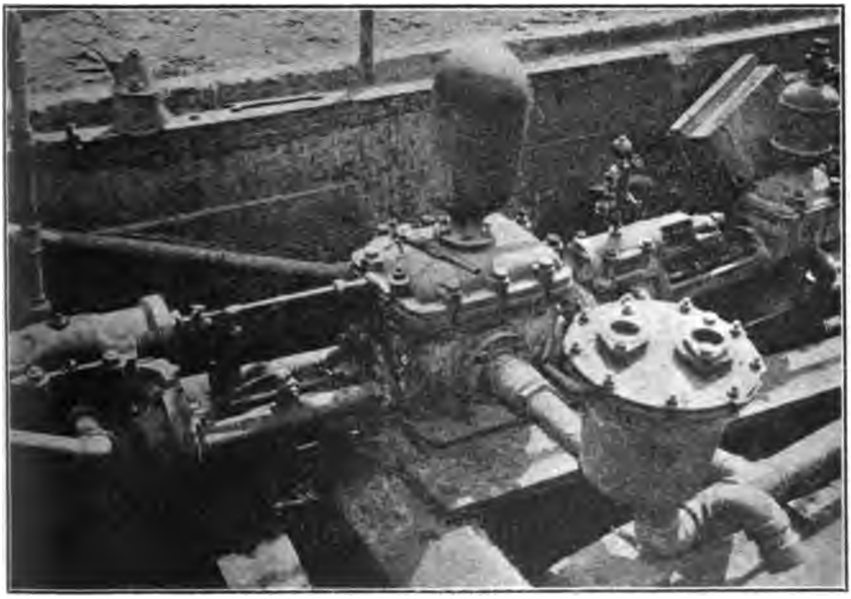


Fig. 82. Pump for waste oil recovery in oil trap of the Southern Pacific at West Oakland. Photograph by A. M. Fairfield.

Numerous analyses have been made of the discharges from the various chemical plants and the larger tanneries to determine whether or not they contain substances injurious to fish or plankton. This work has not been completed and we are not prepared, therefore, to submit a statement or opinion. Beginning July 1, 1916, the work of investigation and prevention of water pollution will be under the supervision of W. H. Shebley, Superintendent of Hatcheries, and will be handled under his direction throughout the state and without reference to districts.

Respectfully submitted.

(Signed) A. M. Fairfield,
Deputy and Assistant.

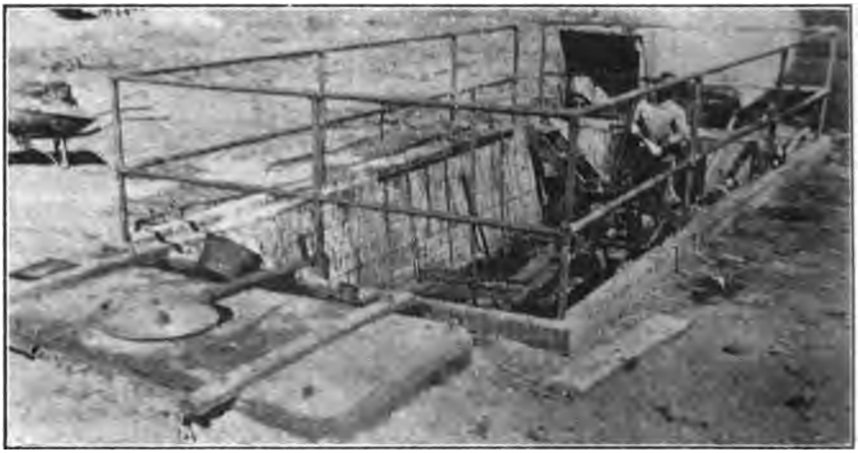


Fig. 83. Oil trap of the Southern Pacific at West Oakland. Photograph by A. M. Fairfield.

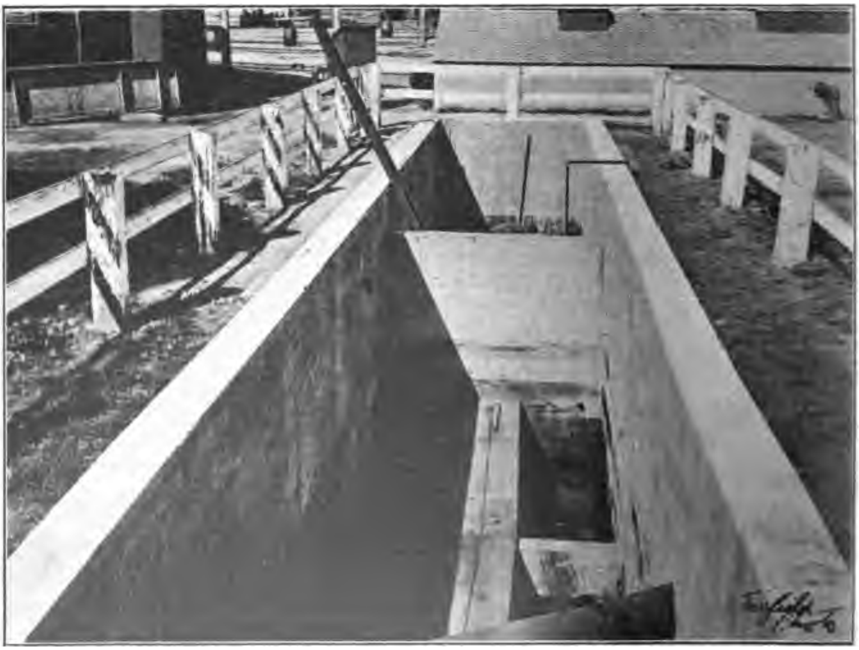


Fig. 84. Southern Pacific oil trap at San Jose, 10′ x 60′ x 18′. There are similar traps at San Luis Obispo, Watsonville Junction and San Francisco. Photograph by A. M. Fairfield.

REPORT OF SAN FRANCISCO DISTRICT OFFICE.

The Honorable Board of Fish and Game Commissioners:

Gentlemen: During the past two years fines totaling $23,785 were imposed upon 1169 violators arrested by the assistants working in the San Francisco Division. This excellent record shows well the support received from the magistrates before whom fish and game cases are tried.

For the most part, it can be said that throughout the entire division the assistants are receiving more help from people who believe in game conservation than ever before. This is because every one is beginning to realize that it is part of his duty to see that the laws made for game perpetuation are enforced and that it is up to him to assist the officers sworn to enforce the fish and game laws.

It is frequently asked why it is necessary for the commission to maintain a force of deputies in San Francisco, where there is no game. Although there is no hunting in San Francisco the results of the many violations occurring in the surrounding country are taken to San Francisco. During the past two years there were seized by the deputies in San Francisco, 4027 crabs, 6753 pounds of fish, 137 pounds of deer meat, 911 pounds of dried shrimp, and 6483 wild ducks and geese. All of this mass of fish and game had been taken or was held in violation of the law. During the same time, there were tried in the San Francisco police courts 132 game and fish cases. From this statement it will be seen by the reader that although there may be no living game in San Francisco there is a vast amount of illegal game held there during a year's time.

Game Conditions.

From the sportsman's point of view the coast region of California is particularly fortunate in having an extensive area of rough brush-covered land unsuited for agricultural purposes. On these lands the many varieties of native game have excellent cover and with the proper laws to protect and proper enforcement of these laws there will be an abundance of game for a long time to come.

There is no city of the size of San Francisco in the United States, or possibly in the world, that offers the same opportunities to the sportsman as does San Francisco. Within seventy-five miles of the thickly-settled bay region there are killed each year hundreds of deer and thousands of quail, doves, ducks and other small game. The best part of this, and the most encouraging, is the fact that under our present laws, with some slight changes, nearly all species will hold their own, if not increase.

Deer. There have never been game laws based upon more sound principles than the present acts relating to deer. The season in the coast region was changed at the last session of the legislature so that for the most part the killing of deer when the horns are in the soft velvet is prohibited.

With scarcely an exception the law giving protection to spiked bucks has been conceded by sportsmen to be one of the best that has ever been passed by our legislature. Young male deer are practically always found with the females. On account of this fact, and on account of the impossibility of telling the sexes apart, even at a short distance, it is essential that the hunter be most certain as to what he is shooting. There are, unfortunately, many careless hunters who shoot at the first sign of moving brush, with the result that frequently some other hunter is killed or dangerously wounded. This law compels the deer hunter to be certain of the character of the deer he is shooting and will, without doubt, save the lives of many of his fellow sportsmen. Reports show that the present year has been an excellent breeding season, as does with two fawns are the rule.

During the winter of 1915–1916 many deer were found dead in the northern coast counties. Investigations carried on by the commission did not reveal any new light on the cause of the deaths, but did confirm the belief that an abnormal number of internal parasites are probably largely responsible. It is possible that the deer are weakened on account of the severe winter weather and are unable to throw off the parasites. It is interesting to note that in no other part of the state has there ever been any epidemic of even minor importance among the deer. It is the intention of the commission to study these occasional epidemics and to endeavor to save the hundreds of deer that are lost each winter.

Quail. Quail have had an excellent summer. Young broods of both mountain and valley quail are seen commonly in the haunts frequented by these birds. Making the seasons during which both species can be taken the same has been of great benefit in this district. Very little complaint has been received on account of the later opening of the mountain quail season, for it is uniformly realized that the breeding season is the same and it is not right to kill the young birds before they are fully grown. Although there is a great difference in the plumage of the two species, there has been considerable confusion among hunters as to which species they were shooting. In certain instances, unintentional violations have occurred.

Waterfowl and Shore Birds. Duck shooting in the bay region was very poor during last year although there were many more ducks bred on the eastern side of the bay than usual. Shooting in all sections was below normal. Even in the San Joaquin Valley birds were not as abundant as in former years. The state law was changed at the last session of the legislature to conform with the Federal Migratory Bird Law, thus prohibiting shooting during the month of February. This, without doubt, has greatly increased the number of locally nesting ducks and will probably, during the coming fall, make good shooting in the early part of the season before the so-called "northern" birds arrive.

In the spring of 1916 there was a remarkable flight of jacksnipe in the Livermore Valley, Alameda County. Thousands of birds appeared and bag limits were the rule. In other sections this excellent game bird appeared in fair numbers. On account of the Federal Migratory Bird Law giving protection to all of the shore birds except the black-breasted and golden plover, greater and lesser yellowlegs and jacksnipe, and on account of the difficulty the average hunter has in identifying the different shore birds, it was recommended to the Department of Agriculture that all shore birds except the jacksnipe be included in the protected list. This has been done so that at present the only shore bird upon which there is an open season in California is the jacksnipe. Their open season is the same as that for ducks and geese.

Doves and Pigeons. There has been considerable increase in the number of doves on account of the delaying of the open season until September 1st. By that date most of the birds are through nesting and the young birds have reached a sufficient size so that they are able to look after themselves if the parents should be killed. It will take a number of years to bring the doves back to their former numbers, but if the present law is continued this will surely be accomplished.

Band-tailed pigeons have been reported in increasing numbers in many parts of the district and have been found nesting in sections where they were formerly not supposed to breed. The delayed protection given this species has, without doubt, added greatly to the number of birds and will mean their perpetuation as a game bird.

Introduced Game. Several years ago a small plant of wild turkeys was made in the western part of Sonoma County. It is claimed by parties living in that region that there are now several hundred birds thoroughly wild. Another plant, made in Humboldt County, is reported to have been almost as successful. If the birds in these sections continue to increase, all of the money expended by the commission in turkey experiments will have been well spent and by drawing on these regions turkeys can be secured for stocking other sections adapted to them.

Respectfully submitted.

(Signed) J. S. HUNTER,
Assistant Executive Officer.

REPORT OF SACRAMENTO DISTRICT OFFICE.

Administration.

The Honorable Board of Fish and Game Commissioners.

GENTLEMEN: In submitting a summary of the work of the Northern, or Sacramento District for the past two years, it may be pertinent to state that the district consists of twenty-three counties, as follows: Alpine, Amador, Butte, Calaveras, Colusa, El Dorado, Glenn, Lassen, Modoc, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Sierra, Siskiyou, Sutter, Tehama, Trinity, Yolo, Yuba and a portion of Solano. Approximately 45,000 square miles of diversified territory are included, an area almost equal to that of the state of New York. The division office at Sacramento is under the able control of F. M. Newbert, for five years president of the Board of Fish and Game Commissioners. An office force of four is maintained and twenty-two deputies are under the direct supervision of this office. The location at the state capital increases the importance of the work of this district.

The district has approximately 14,500 miles of streams and about 400,000 acres of lakes, thus making it particularly rich in fishery resources. Practically all these bodies of water contain, or are capable of sustaining, edible fish life of many species. All of the large valley streams contain such choice fish as salmon, shad, black and striped bass, perch, sunfish, crappie and catfish, together with many other species, while the snow-fed mountain streams and lakes contain nearly all the known species of trout, both native and foreign. All the northern counties of the district contain game birds in abundance and possibly more waterfowl are to be found in this district than in all the rest of the state combined.

Development of Public Sentiment Favorable to Game Protection.

So successfully has public sentiment been developed that many of our people do not realize or see the necessity of a greater measure of conservation. Increased interest in the protection of fish and game has been very marked in the past few years. Residents and visitors are now beginning to realize what a great asset fish and game are to the community. In years past few arrests were made and it was almost impossible to secure a conviction by jury even in the face of strong and conclusive evidence. How different today! The commission now fearlessly submits the equity of the game laws to a judge or jury. Due to the steadily-growing belief of our best citizens that the fish and game laws are of equal value with other laws on our statute books, the commission and its officers receive the hearty cooperation of the county prosecutors and justices.

Game Refuges and Preserves.

The recently added area of a portion of the Trinity National Forest in Trinity County to the game refuges of our state is giving needed protection to many quail, grouse and other game birds and animals. Refuges are in reality natural game farms and are much better adapted to the propagation of game than all the artificial game farms taken together, for the reason that game artificially propagated and hand-fed is prone to become too confiding and when liberated falls an easy prey to both man and predatory animals. An ideal refuge for waterfowl could be established in central California, in Butte, Colusa, Sutter or Yuba counties. Such a refuge would pay 1000 per cent on the investment and insure the perpetuation of California's supply of ducks and geese and probably also the supply of many neighboring states. Unless something of this nature is done, and done soon, there will be an end to the once wonderful flight of geese and ducks through central California, for the increase of reclamation of swamp lands is destroying their breeding grounds. Very large percentages of several species of ducks nest and rear their young in the counties above named, because conditions of feed, water and safety make it to their liking. The banding together of a large number of northern California sportsmen to hold from reclamation 16,209 acres of land in Sutter, Butte and Colusa counties, is therefore to be commended. The withholding of these swamp lands also means much to the fishing industry, as the duck grounds adjacent to the Sacramento and Feather rivers are huge natural hatcheries for black and striped bass, catfish, and perch. The reclamation of these lands would mean to the ducks and shore birds what the reclamation of such lands has meant to the fish. The steady decline in the supply of many of our choicest food fishes can be laid to the reclamation of the huge inland region.

Fish Planting From Overflowed Areas.

As neither catfish, perch, black bass, crappie nor any of the sunfishes are propagated in our state hatchery at present, much of the replanting of these fish has been and must be made by saving them from overflowed areas in these districts.

In 1904 and 1905 the writer, assisted by the commission and the late Deputy Cross, stocked 318 streams and lakes with 1483 cans, or approximately 14,830 adult black bass, besides numerous other food fishes, with fish saved from overflowed areas in Sacramento, Yolo and Sutter counties. The majority of these fish were planted south of San Francisco. Further work of this character will be necessary this coming fall and winter (1916), owing to the high stage of water last season, which distributed these fish into the lowlands which later dry up.

Winter Feeding of Game.

According to statements of old residents, the winter of 1915–16 was perhaps the most severe ever experienced in the northern counties and consequently very destructive to bird and animal life, especially to mountain quail. While undoubtedly a large number of deer and mountain quail died from exposure or became the prey of predatory animals, the number reported was no doubt exaggerated. In Trinity, Modoc, Shasta, Plumas, El Dorado, Tehama, in fact, in all the mountain region, these birds were fed and cared for during the heavy snowfall last winter.

As soon as this district office was notified prompt action was taken by President Newbert to remedy the condition. Quantities of grain and hay were purchased by our deputies in the different districts. These men, being adepts in the use of snowshoes and skis, saved thousands of birds and animals by their prompt action. The small sum of $134.32 was spent by this office in the purchase of feed, but this sum does not represent the entire amount expended for this purpose. The game protective organizations in various counties acted quickly and in many instances relieved the situation before arrangements could be made by our deputies to purchase feed or reach the locality where game was in distress.

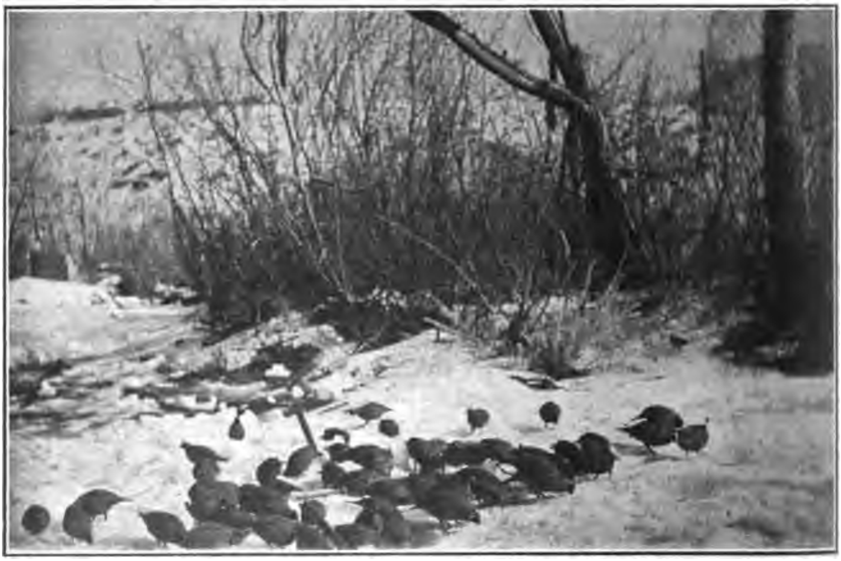


Fig. 85. Valley quail being fed during January snowstorm by Superintendent of Streets Edgar Thomas at Yreka, Siskiyou County, California.

Deputy Ray O'Connor of Nevada County fed eleven bunches of quail and many deer. Deputy Cady of Susanville fed several hundred mountain quail and deer. He also killed over forty sharp-shinned hawks which were preying on the snow-bound quail. Deputy White of Castella used a novel method of feeding quail along the Sacramento River and railroad track by making use of a hand car. He also scattered feed along the road from the rear of a railroad train. Many hundreds of quail had taken refuge along the track and on the banks of the Sacramento River. Many deer were observed swimming down the Sacramento to lower altitudes, and were later cared for by Deputy White. Deputy Warren of Plumas County, assisted by a number of residents, fed and saved a large number of quail and deer. Deputies Streuber and Harris of Siskiyou County, Laws of Trinity and Scroggs of Placer County, all reported having saved large numbers of deer, quail and other birds from starvation.

Thanks are due a large number of residents who, without stinting, fed large quantities of hay and grain to starving game birds and animals and without charge to the state. A. C. Sprout of Copco, on the Klamath, is reported to have fed 300 deer that came to feed with his cattle. Judge Dockery of Hayfork fed forty deer. A. G. Guthrie of Pittville fed seventy mountain quail. L. Albey fed 400 quail near Etna. Edgar Thomas of Yreka cared for a large covey of quail almost in the heart of the city. Dr. Edgecomb of Knob fed several bands of quail. Dr. Tinsman of Adin was very energetic in rendering assistance, together with J. W. Jamison of Dutch Flat. This display of cooperation is gratifying to the commission and to everyone interested in our wild life resources.

Late reports from our deputies advise us that deer, in the northern counties of this district, are plentiful.

A line of game perpetuation endeavor which annually is increasing in scope is the heavy planting of trout fry in the numerous streams and lakes of this district, thereby not only taking cognizance of the demands of the sportsmen of the state, but also of the public demand for edible fish.

Northern California is now the mecca of sportsmen from all over the United States. These sportsmen are as keen, if not keener, in their appreciation of the scenic, climatic and outdoor life attributes of this section of the state than even the residents themselves. Through constant and consistent endeavor on the part of the Game Commission the old evils which confronted the sportsman and game lover are being eradicated rapidly and an appreciation of what game conservation and law observance means is restoring the depleted streams and game covers.

Respectfully submitted.

(Signed) GEORGE NEALE,
Assistant in charge Sacramento District Office.

REPORT OF THE LOS ANGELES DISTRICT OFFICE.

The Honorable Board of Fish and Game Commissioners
of the State of California.

Gentlemen: Fish and game work bore better fruit in southern California during the last two years than in all previous experience of the organized efforts whose prime object has been to provide better sport for the licensees whose dollars finance the commission charged with this great public service.

"Nothing succeeds like success"; and sentiment today stands just as squarely behind conservation in southern California as it does in the eastern centers of radicalism, where some have weaned themselves away from the practical aspects of the problem to chase the chimera of sentiment. In this state, the close relation between their Fish and Game Commission and the sportsmen has made the work one of providing more fish to catch and more game to shoot. The most valuable sentiment revolves around sporting rather than around the ultra-æsthetic, the end and aim of which is to set the gun in its rack and the rod in its corner for all time. Too vast an "allied industry" has developed about California fish and game to suffer such a loss, not to mention the plain and direct attraction value it has demonstrated in encouraging men of means to make this commonwealth their home.

The sportsmen of southern California under the present administration of their affairs have seen their fish and game grow with the increases of the field-patrol force. In 1915, they enjoyed the best fishing and the most diversified sport with the rod that has ever been their good fortune. Rainbow trout of large size had grown from Fish and Game Commission plantings in the artificially created mountain reservoir lakes until an entirely new sport had been developed. So likewise with the gamy and toothsome importation from the East, the black bass. Meanwhile, every native form of fishing showed marked improvement. Stream fishing was phenomenally good when the increased number of angling licensees is considered. Hunters enjoyed the best quail shooting in a decade during the extended season wherein the commission vindicated its promise to recommend a longer shooting period as soon as quail increased sufficiently to permit it. Duck-shooting on the clubs was good all through the winter; doves gave excellent sport in September, and the deer crop in some of the counties was the heaviest in several years, Santa Barbara notably reporting a killing double that of the year before.

All these good things came in conjunction with the most business-like and vigorous campaign in behalf of fish and game conservation that it ever has been financially possible to make in southern California, Commissioner Connell having announced that the income of the work seemed to have attained sound enough foundation to warrant establishment of a big hatchery to anticipate demands of the future, and broadening of the field-patrol activities by appointment of deputies in every county. The effect of these changes of policy was so immediate and so palpable that credit was freely given to conservation for the results attained. So today, sportsmen in the south stand squarely behind the plan, and violators find themselves arrayed against a quiet but determined public sentiment which shows in numerous prosecutions and stiff fines to chronic violators. Favorable breeding seasons played a strong part in bringing about better game conditions; but no breeding season is favorable unless the gun be kept from the fields. It may now be said that a breeding stock of game has been developed which, with the care it is sure to receive, can weather any demands likely to be made upon it under the law even by the expected increase in the army of hunting licensees taking advantage of it each year. The supply is here; regulating the annual drain to the annual increase is now the problem.

Fish propagation work in the south has been more a matter of distribution than of rearing, but Bear Valley Hatchery has had two good years, albeit expensive in unit cost per thousand of product as judged by the state standard for fishcultural efforts. The May first trout-opening was one of the wisest laws ever passed to benefit fishing in the south. It already has justified the delay on Bear Lake alone. The value of protecting "spawners" through April is no longer questioned even by those who at first fought it bitterly there.

In the game fields, aided by the delayed opening of the rabbit season, the potential presence of deputies has resulted in the best two summers the breeding birds have ever enjoyed. The rabbit law was not so much intended to protect rabbits, which are a pest, as it was to deprive the violator of any legal color of right to be afield with a gun in the nesting season. That it has done, and to it in great measure may the present heavy head of quail and doves be credited. Considerable of the opposition to the rabbit protective measures has died out among large ranchers who undeniably do suffer sorely from the depredations of these animals, entirely because these men of broad vision have themselves seen the benefits of excluding the fire-starting, fence-cutting type of violator from their lands by removing from him the chance to cover his depredation by the excuse of benefiting them through decreasing their rabbits. Many a ranch owner wishes to give the true sportsman every opportunity to enjoy his game; and some are learning that between the sportsman and the summer violator lies a gulf like the sea. For he who respects not the law of the state will not respect the rights of his fellowman, and he it is who usually is careless with all other of the relations of life. Possibly nowhere in the state has the value of the absolute closure of all shooting in summer been so plainly demonstrated as in southern California. Now the man who shoots announces himself as violating the law—a "poacher upon the public"—and blazes the trail to justice.

The rabbit law, like the late trout-opening, has put in the hands of the patrol force a practical power of enforcement equal to trebling its numbers, and is therefore a state asset of at least triple the present pay roll every month. What its incidental benefits in building up a more attractive game supply may be, only the future growth of the state through these most potent inducements can tell. Experience has proved that the love of the rod and gun lies deep in most normal men; and that, other things approximately equal, the majority will cast their lot where they may cast their line with alluring chance of success; will risk getting their gains where they stand chance of getting their game with it. This is not theory, but the most practical reasoning in the world.

Few realize the value of good shooting and fishing as an inducement to tourists and home seekers to come this way; but in the South, world-famed as the playground of men of means, whatever adds to the joy of life by luring to the outdoors must be even more important than elsewhere. Nor is the value solely that of an attraction. In these days of preparedness, who can say how essential may prove these rugged sports which make men of boys by taking the youth of the land away from saloons, pool-rooms and low city company to healthful hills, building strength, self-reliance, character that may one day stand between the nation and its fate?

Realizing the attraction power of the deer interest, the Southern Division under Commissioner Connell's orders, set about making of 1916 a grand "clean-up" of chronic violators whose proclivities for more or less systematic stealing of sport from the law-abiding by "soonering" ahead of the legal opening date, have been under espionage for some time. Backed by repeated information from staunch friends of law and order, the commission was able to accumulate the necessary evidence to run to earth and convict no less than ten confirmed offenders of this class to the great delight of those whose sport in years past had suffered from such marauders. Late in July, Deputy Becker, after a hard chase through the most inaccessible portions of the rugged, craggy Malibu range, known as the "Happy Hunting Ground" of the moderate-circumstanced, short-timed Los Angeles deer seeker, brought to justice Charles Decker and his followers, who were fined. Decker admitted upon the stand the killing of hundreds of deer at all seasons. A few days later, Deputy Barnett succeeded in catching and convicting two hardened offenders; one of them, Byron Secor, had made a business of violating by shipping and selling venison illegally killed. Earlier, Becker uncovered the evidence upon which he convicted Tony Ferriera

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of killing a deer many months previous, in a forest reserve. All told, 1916 was a bad year for the deer crooks, and did more to put the protection of deer upon a solid footing in the south than all past time combined.

Arrests and convictions for infractions of the quail and dove laws have been weekly occurrences, mostly small matters wherein a motorist had knocked over a quail or two along the road, or "potted" a few doves from posts or wires, unable to withstand the temptation, which is always safely met by leaving the gun at home. The day when men will set forth to make a bag in the closed season is past in southern California. It has become not only an expensive but also a most unpopular practice.

At the opening of the trout season, Commissioner Connell made use of the emergency appointment provisions of civil service to extend the patrol force to such proportions that three dozen competent wardens were keeping an eye open along streams and lakes, camps being established at centers of angling interest such as Bear Valley and Little Bear, under the direction of veteran patrol officers, and the fish were given every possible opportunity to cast their spawn in peace during April. Already the effects are being seen along streams as well as in the lakes. The torrential storms of January washed so severely many of the gorge streams that only extraordinary measures could have built up a breeding stock from the remnant left; but there is reason to believe that when supplemented with the outcome of last fall's plantings, this task has been accomplished.

Although commercial fisheries conservation is public service work of the very broadest character, and there is some moral question as to the right of the Fish and Game Commission to divert the moneys collected from hunters and fishermen to this service, the commercial fishermen have themselves contributed in excess of $10,000 in license fees this year, not to mention quite a sum collected in fines from convicted offenders, and in this way have built up a fund which will finance considerable work in the public behalf. Owing to poor advice, some of the ignorant aliens refused to take license, and it became necessary for the sea-patrol under Deputies Pritchard, Nidever and Barnett to make a grand "clean-up" during June which resulted in no less than forty-six arrests and nearly as many convictions. The licensees found that fishing privileges come cheaper from the commission than from justices of the peace. The Japanese gave no trouble whatever, taking license en masse through the secretary of their association, and to their credit may it be said that they respect the laws even better than the American citizens, once the laws are grasped and understood by their head men.

Acting upon complaints from the Tuna Club regarding violations of the closed "District No. 20" comprising the state waters surrounding Santa Catalina Island, the sea-patrol has maintained surveillance thereupon at every opportunity, and a special arrangement was entered into whereby a resident deputy was commissioned to expedite enforcement of the laws designed to protect the sporting fishing thereabouts, which has been a peculiar and unique asset of southern California, with its opportunity to catch the great tuna, the gamier swordfish of both species, the heavier black sea bass, and numerous smaller kinds.

Laws passed to protect the angling along the seashore by prohibiting the netting or sale of the characteristic game fishes of the littoral have been enforced against several professional seiners whose gear was confiscated and sold, justice being tempered with mercy in all cases but those wherein wilful and repeated violation was proved. The patrol work incidental to enforcing these laws has been financed by the collection of angling licenses from surf fishermen, who are numerous and ever-growing in southern California and who show a sportsmanlike disposition to pay a fair proportion of the expense necessary to protect their favorite varieties.

Beside the immediate features of enforcement work, numerous investigations have been carried forward by experts in the employ of the commission. The activities of kelp harvesters, prospect of successful acclimatization of striped bass in the lagoons of the south, angling and life conditions in Bear Lake, and shellfish are a few of the matters covered. The tuna packing industry, which has become the largest individual feature of the fish trade in California, surpassing even the salmon industry in whose development a lifetime and enormous sums have been spent, has had the benefit of the commission's fisheries experts who studied the habits and wanderings of the albacore, commonly canned as tuna. Ten years ago a waste product, this "chicken of the sea" is now familiar to nearly every family, and its development into a state resource has cost California not a penny other than the penalty of years of profit lost through not knowing its sterling value earlier.

Fish and game may now be said to stand upon a substantial footing in the south, financially, physically and morally. With the most up-to-date hatchery in the world nearing completion on the eastern slope of the Sierras ready to begin work on next spring's eggs, there is reason to believe all freshwater fish conditions will steadily improve. The steady growth in license income took a sudden and most noteworthy spring this summer, until it would be a bold man indeed who would attempt to predict its total ten years hence; but so long as every unit-increase in the demand brings with it another dollar to defray the cost of additional sport demanded, just so long will that increase be denied any terrors for those whose hope and best wish is ever "more fish to catch, more game to shoot" for all Californians.

Respectfully submitted.

(Signed) EDWIN L. HEDDERLY,
Assistant.

REPORT OF FRESNO DISTRICT OFFICE.

The Honorable Board of Fish and Game Commissioners.

GENTLEMEN: The year 1915 witnessed little change in general conditions with regard to fish and game in the Fresno Division. The policy of the office continued to be along the same lines as in previous years. The office was a central point from which the activities of the deputies were directed and at the same time it was recognized by the public as a friendly cooperative agency alike for the diffusion of information regarding fish and game laws and the aims and ideals of the Fish and Game Commission as well as a receiving point for information from the public on all subjects pertaining to the betterment of conditions with regard to fish and game law enforcement. The active cooperation and confidence of the public throughout the nine counties of the Fresno Division has been the best justification for the establishment of the Fresno office in the first instance.

In the winter months of 1914–15 a determined effort was made to correct conditions existing around the westerly and southerly boundaries of Yosemite National Park. Many deer in previous years have been slaughtered at the time when the snows drive the deer from the protected area of this National Park. By hard and patient work the Fresno office had finally reduced to a minimum, offenses against the deer law in the counties of Kern, Tulare, Fresno and Madera. In former years, large numbers of deer were slaughtered when in a comparatively helpless state in the foothill and lower mountain region. Naturally, the most important feature of protective work for the deer was in securing the cooperation of the mountain people. Although at first antagonistic because the mountaineers had always made a practice of killing deer for the meat, when needed, a condition was brought about gradually whereby in the mountains mentioned the Fish and Game Commission had the almost unanimous support of all the mountain people. The only remaining section of the Fresno Division where the enforcement of the deer law and the sentiment therefor was not general, was that section of the mountains lying as described, just outside of Yosemite National Park. Three picked deputies were sent into the region and remained there throughout the winter months. From all evidence that can be gathered there were practically no deer killed in that section during the past winter. However, the work of the deputies must be followed up for several successive seasons in order to make these improved conditions effective and enduring.

The fish planting operations in the Sierra Nevada Mountains of the Fresno Division have been consistently carried forward and in 1914 the pack horse distribution work reached its climax of magnitude. This work of stocking the barren streams of a vast region with desirable varieties of trout has been of great value and of universal popularity with the public. It should be noted that some experiments of much scientific value have been undertaken which give promise of interesting results. Waters uninhabited by fish have been available for such experiments. Conditions have been favorable for testing the development of steelhead trout fry when planted in waters where the fish can not readily run to the ocean. Other experiments along similar lines to observe what changes, if any, take place in the apparent characteristics of golden trout have been undertaken and these experiments, as well as the steelhead experiment, have been the subject of previous biennial reports from the Fresno office. The time to draw conclusions from these experiments should be ripe in the summer seasons of 1916 and 1917.

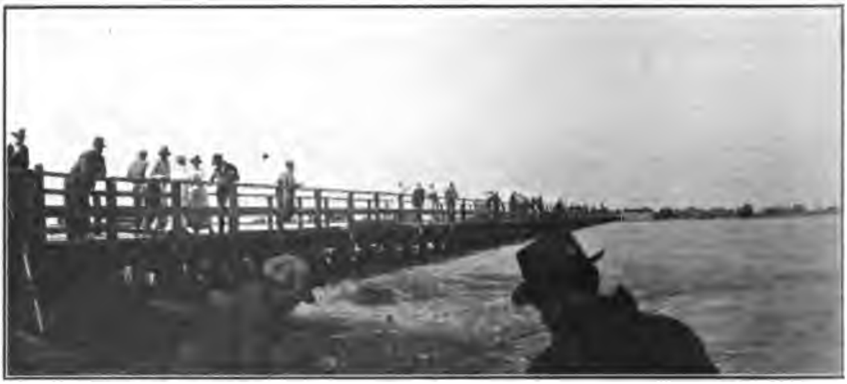

Fig. 86. Fishing for salmon with hook and line on the San Joaquin River at the Miller and Lux weir at Mendota, Fresno County. Photograph by A. D. Ferguson.

The following copies of reports cover the fish planting enterprises of the Fresno office during the seasons 1914 and 1915.

Report Trout Planting 1914.

By reason of the magnitude of the operations, the distances over which the fish were transported and the fact that golden trout alone were used in the transplanting operations, the fish planting by the Fresno office in the summer months of 1914, was the most important undertaking ever inaugurated by that office.

On July 1, 1914, Deputy Ellis left Fresno with a finely equipped pack train of twenty mules, of which fourteen carried fish cans and six carried provisions and horse feed. The fish planting crew consisted of Deputies Ellis, Brownlow, Bullard and Smalley. Later Messrs. Walter Williams, Ray C. Ellis and Tom P. Ferguson were engaged as assistants in connection with the expedition. Mr. D. A. Williams, a well known business man of Fresno, fell in with the expedition at

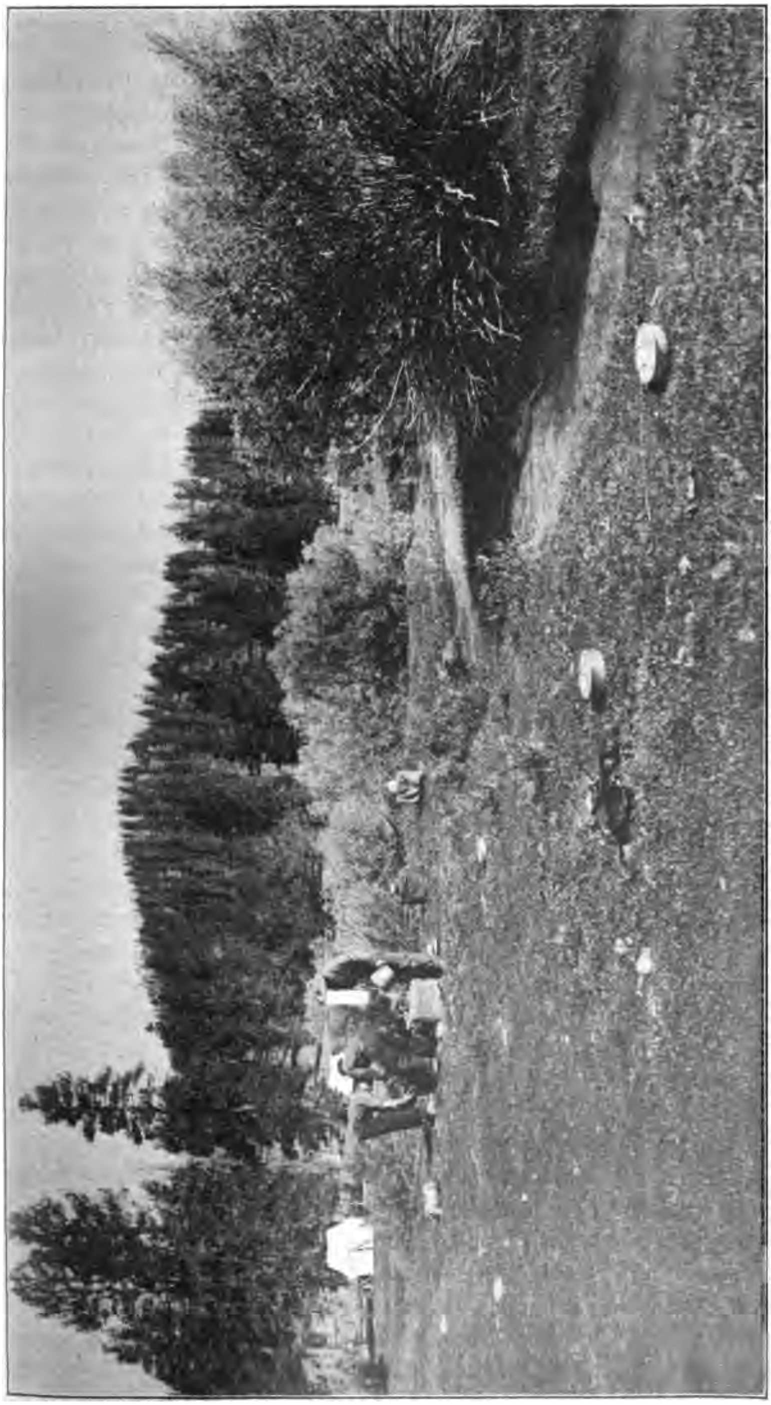

Fig. 87. Golden trout operations. Sorting the fish at Long Meadows preparatory to a pack-horse trip. Photograph by A. D. Ferguson.

Whitney Meadows and donated his volunteer services to assist in taking up fish and in the fish planting operations.

The pack train proceeded to Whitney Meadows and there took up some 2000 adult golden trout. The fish planters then proceeded by trail to Lone Pine, which consumed two days, and thence to Bishop and North Lake, which took four days. While encountering many difficulties, they succeeded in landing the major portion of the fish at a comparatively high altitude at North Lake; where the danger of losses was over. At North Lake the expedition was joined by Paul G. Reddington, forest supervisor of the Sierra National Forest, and A. D. Ferguson, in charge Fresno Division. From North Lake the fourteen mule loads of golden trout were taken across the summit via Piute Pass, crossing on 60 feet of snow, and on to the headwaters of the south fork of the San Joaquin River.

This consignment of fish was planted in the following waters:

Desolation Lake, two unnamed lakes on the south side of Piute Creek, French Canyon Creek, and Piute Creek. Distant two days pack from these localities, plants were made in Heart Lake and Marie Lake, tributary to the south fork of the San Joaquin, and in the headwaters of Bear Creek which is an important tributary of the south fork of the San Joaquin.

Immediately after delivering the golden trout on the headwaters of Piute Creek, Deputy Ellis, accompanied by Ray Ellis and Tom Ferguson, returned with half the pack train to Whitney Meadows for a new supply of golden trout for transplanting, while Deputies Bullard and Brownlow, after stocking Bear Creek and lake waters, took the remaining half of the pack train, by trail, to Mammoth where they awaited a consignment of golden trout which Deputy Ellis was in the meantime gathering at Whitney Meadows. About August 2d, Deputy Ellis and his assistants carried seven mule loads (14 cans) of adult golden trout down to Lone Pine and thence by auto truck to Mammoth, where they were delivered to Deputies Bullard and Brownlow, the former deputies returning at once to Whitney Meadows to secure a further supply. This consignment of fish was planted by Deputies Bullard and Brownlow in the creek at Agnew Meadows, in Shadow Creek, Garnet Lake and Shadow Lake. It had been previously arranged between the Fresno office and the superintendent of Yosemite National Park, that five mule loads of this consignment of golden trout were to be delivered to the park authorities at Thousand Island Lake. Upon arriving at Thousand Island Lake, the deputies of the Fish and Game Commission found evidence that the park pack train had been there but had returned to the park. Accordingly, all of the fish were distributed in waters immediately south of the park line.

By the foregoing operations the range of the golden trout has been extended more than 150 miles along the summit waters of the Sierras from Volcano Creek, the original habitat.

On August 10, 1914, Commissioner Carl Westerfeld and A. D. Ferguson, in charge of the Fresno office, accompanied by Robert Duke, attorney for the commission, joined the pack train at Lone Pine and were with the crew throughout the remainder of the time the expedition was in the field. Deputy Smalley was, because of severe illness, compelled to return home from Bishop, leaving the pack-train crew while on its first trip. From Whitney Meadows as a base of supply, seven plants of golden trout were made in new waters tributary to the upper Big Kern and in small lakes in the vicinity of Mount Genoa and Crag Erricson. An additional plant also was made to the former plant in Lake South American. Commissioner Westerfeld assisted throughout this and subsequent operations not only in taking up the golden trout but in distributing them.

Deputies Bullard and Brownlow having now returned with their string of pack stock to Whitney Meadows, a full pack-train load of golden trout were taken up and the expedition proceeded via Kern River Canyon, Farewell Gap, Mineral King, Timber Gap, Elizabeth Pass, Roaring River, Kings River Canyon and on to the northern slope of the divide between Middle and South Forks of Kings River. En route plants were made in Cliff Creek, tributary to the Kaweah River and Lone Pine Meadow and Tamarack Lake (renamed Lake Westerfeld) on the headwaters of the middle fork of the Kaweah. The party divided at Roaring River. Deputy Bullard, assisted by Walter Williams, with four mule loads of golden trout, completed the season's operations by planting Horse Corral Creek, Lewis Creek and Wildman Creek, tributaries of the south fork of Kings River, and Kennedy Creek with its tributary lakes, and a lake at the head of Lost Canyon, tributary to middle fork of Kings River, situated on the north side of the Monarch Divide which separates the middle and south forks of the river. The expedition was disbanded at Big Meadows in northern Tulare County.

About 5000 adult golden trout were transplanted, all taken with (fly) hook and line. All of the plants were made in ideal barren waters which are located conveniently for further distribution work in still other barren waters as soon as the fish shall have become established. Because of these and previous similar operations in transplanting golden trout, the fear once common that this peerless species might become extinct, is forever allayed.

Late in September a carload of rainbow, eastern brook and Loch Leven trout fry were planted at Huntington Lake.

Report Trout Planting 1915.

The fish planting operations of the Fresno office during the 1915 season were confined to extending to new waters in the same general locality the plants formerly made in an important part of eastern Fresno County.

In the month of August, with a ten-mule pack train, Deputies A. D. Ferguson, in charge of Fresno Division, S. L. N. Ellis and F. A. Bullard proceeded to Dinkey Lake to complete some transplanting work first undertaken in that vicinity several years ago. The expedition was accompanied by Hon. L. B. Cary, chairman of the House Committee on Fish and Game in the legislature of 1915. Mr. Cary was given an opportunity to observe the methods of the Fish and Game Commission in establishing trout in available waters which had been theretofore barren. With rainbow trout and black-spotted trout secured from Psalter Creek, plants were made as follows: In the creek which heads on the divide west of "Mining Town," the streams which feed from various directions, Dinkey Creek, the upper main Dinkey Creek, the stream which comes from Cutts Meadow and the streams which are crossed by the trail from Cutts Meadow to Mining Town; all being tributary to Dinkey Creek.

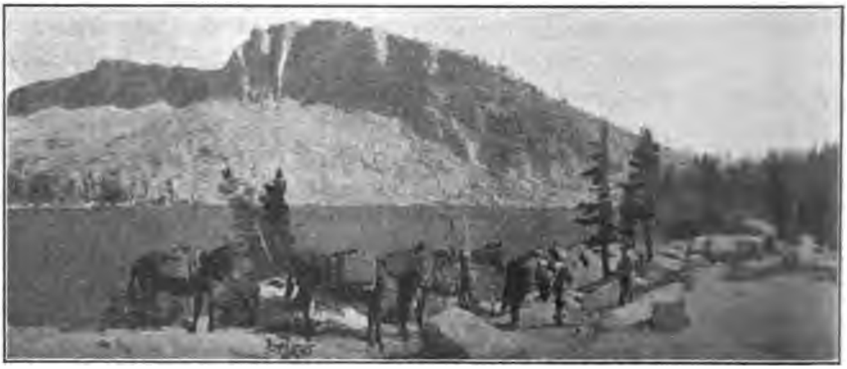

Fig. 88. Deputies of the Fresno Division do fish planting along with patrol duty. Note the cans of fish on mule-back. Photograph by A. D. Fergusón.

Thereafter, with eastern brook trout secured at Dinkey Meadows, where they were planted by Deputy Kenneth Hughes in 1910, the upper waters of the main fork of Dinkey Creek were well stocked.

After finishing the stocking of all the main tributaries of Dinkey Creek, the fish planting operations were transferred to the north fork of Kings River. At upper Maxon's Meadow a plentiful supply of rainbow trout were found, being the result of a plant made in 1910. Drawing on this supply and using fish from 8 to 14 inches in length, the following barren waters were stocked: The lake known as The Devil's Punch Bowl, the south fork of Fleming Creek and two small lakes tributary to said creek, Fall Creek and Baird Creek. Plants were later made in the extreme head of the north fork of Kings River.

After completing these operations the activities of the fish planters were transferred to the vicinity of Helm Creek, stocked in 1910 with eastern brook trout. The creek was found to be alive with these trout. Here adult fish were taken to stock various lakes in that vicinity. That some idea may be gained of the results which follow fish planting in barren waters in the Sierra Nevada Mountains, attention is called to the fact that Deputy Bullard, fishing with "flies," took 110 eastern brook trout from Helm Creek within thirty minutes. These fish were afterwards planted, uninjured, in new waters in that vicinity. Nelson Lake and five other barren lakes tributary to Helm Creek, were also stocked with adult eastern brook trout, this completing the transplanting operations with adult fish.

In September, 26,000 rainbow fry from the Sisson Hatchery were planted by deputies of the Fresno office in the north fork of the San Joaquin River. These fish were taken to the terminus of the wagon road at Bass Lake and thence by pack train to the waters to be stocked.

A carload (100 cans) of rainbow and Loch Leven fry from the Sisson Hatchery, were distributed late in September in Huntington Lake and various streams tributary to Huntington Lake and to Shaver Lake, all being in the mountains of eastern Fresno County.

The Fresno office of the Fish and Game Commission was closed March 1, 1916.

Respectfully submitted.

(Signed) A. D. FERGUSON,
Assistant in Charge Fresno District Office.

APPENDIX

CALIFORNIA FISH AND GAME COMMISSION, ADMINISTRATIVE DISTRICTS.

San Francisco District.

Office: 425 New Call Building, San Francisco.
Phone, Sutter 6100.

- Alameda County.
- Contra Costa County.
- Del Norte County.
- Fresno County.
- Humboldt County.
- Kings County.
- Lake County.
- Madera County.
- Marin County.
- Mariposa County.
- Mendocino County.
- Merced County.
- Monterey County.
- Napa County.
- San Benito County.
- San Francisco County.
- San Mateo County.
- Santa Clara County.
- Santa Cruz County.
- Sonoma County.
- Solano County.
- Stanislaus County.
- Tuolumne County.
- Tulare County.

Sacramento District.

Office: Forum Building, Sacramento.
Phone, Main 4300.

- Alpine County.
- Amador County.
- Butte County.
- Calaveras County.
- Colusa County.
- Eldorado County.
- Glenn County.
- Lassen County.
- Modoc County.
- Nevada County.
- Placer County.
- Plumas County.
- Sacramento County.
- San Joaquin County.
- Shasta County.
- Sierra County.
- Siskiyou County.
- Sutter County.
- Tehama County.
- Trinity County.
- Yuba County.
- Yolo County.

Los Angeles District.

Office: 426 Union League Building, Los Angeles.
Phones: Broadway, 1155; Home, F5705.

- Imperial County.
- Inyo County.
- Kern County.
- Los Angeles County.
- Mono County.
- Orange County.
- Riverside County.
- San Bernardino County.
- San Diego County.
- San Luis Obispo County.
- Santa Barbara County.
- Ventura County.

BOARD OF FISH AND GAME COMMISSIONERS.

Roster June 30, 1916.

Commissioners appointed by the Governor, by and with the consent of the Senate. Term at pleasure of the Governor. No compensation.

F. M. Newbert, *President,* Sacramento	Appointed August 3, 1911
M. J. Connell, Los Angeles	Appointed February 1, 1909
Carl Westerfeld, San Francisco	Appointed November 28, 1911
Ernest Schaeffle, *Executive Officer,* San Francisco	First appointed Assistant March 29, 1905. Appointed Executive Officer November 29, 1911.

Head office, San Francisco, 425 Call Building.†

Under direction of Commissioner Carl Westerfeld.

	Date first appointed
Ernest Schaeffle, Executive Officer	March 29, 1905
J. S. Hunter, Assistant Executive Officer	December 1, 1907
A. D. Ferguson, Field Agent	May 1, 1909
R. D. Duke, Attorney	February 6, 1912
John P. Fisher, Chief of License Bureau	May 1, 1915
Daniel O'Connell, Clerk, License Bureau	December 9, 1911
E. C. Boucher, Special Agent	October 1, 1914
O. H. Reichling, Cashier and Bookkeeper	March 26, 1908
H. R. Dunbar, Assistant Cashier and Bookkeeper	December 16, 1912
Leo N. Pettit,* Chief Clerk	May 1, 1901
Mae D. Horn, Stenographer	July 23, 1907
Lida H. Ransom, Stenographer	October 1, 1911

Fishcultural Department.

Hatcheries—Screen and Ladder Investigations—Water Pollution.

W. H. Shebley, In Charge, San Francisco	May 16, 1883
E. W. Hunt, Field Agent, San Francisco	August 10, 1887
G. H. Lambson, Superintendent, Sisson Hatchery	March 1, 1916
F. A. Shebley,* Superintendent, Ukiah and Snow Mt. Hatchery	November 1, 1893
W. O. Fassett,* Superintendent, Ft. Seward Hatchery	April 1, 1896
A. E. Doney, Screen and Ladder Surveyor, San Francisco	March 1, 1905
A. E. Culver, Screen Surveyor, San Francisco	July 1, 1913
A. M. Fairfield,* Water Pollution, San Francisco	August 11, 1906
J. H. Hoerl, Chief Clerk, San Francisco	March 1, 1908
Lillian Ciegler, Stenographer, San Francisco	May 1, 1914
R. W. Requa* (on furlough), Assistant Superintendent, Chico	June 18, 1895

Sisson Hatchery—Sisson.

E. Clessens, Fourth Class Fish Culturist	February 1, 1912
F. Clessens, Carpenter	April 1, 1908
R. Elkins, Temporary Employee	January 17, 1914
A. Hill, Temporary Employee	April 2, 1914
Wm. Heffernan, Watchman	June 7, 1912
G. McCloud, Jr., Fourth Class Fish Culturist	February 9, 1914
J. McManus, Temporary Employee	October 19, 1914
C. Nixon, Third Class Fish Culturist	March 1, 1910
R. A. Pape, Temporary Employee	April 9, 1915
R. Rupp, Pond Watchman	January 1, 1911
J. Sollner, Fourth Class Fish Culturist	July 5, 1913
F. Sullaway, Foreman	October 1, 1911
J. E. Winchcomb, Pond Fish Feeder	August 1, 1911

Distribution Cars.

L. Phillips, Superintendent Car No. 1	January 1, 1912
R. W. Flint, Temporary Employee	April 15, 1916
G. McCloud, Sr., Fourth Class Fish Culturist	July 1, 1913
F. L. Raycraft, Temporary Employee	March 29, 1916
R. I. Bassler, Superintendent Car No. 2	January 1, 1912
A. Mack, Temporary Employee	December 27, 1915
W. H. Pepper,* Temporary Employee	May 16, 1904

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*Employment not continuous.

†February 1, 1916, San Francisco and Fresno districts were consolidated.

Ukiah and Snow Mountain Hatcheries.

	Date first appointed
J. Shebley, Fourth Class Fish Culturist	June 17, 1913

Brookdale Hatchery.

H. L. Nehf, Temporary Hatchery Foreman	February 10, 1915
L. E. Breese, Temporary Employee	February 14, 1915

Scott Creek Station.

R. Mattei, Temporary Assistant Spawn Taker	February 10, 1915

Fort Seward Hatchery.

S. Campbell, Temporary Employee	March 6, 1916

Tahoe Hatcheries.

Clarence Christiansen, Temporary Employee	April 26, 1915
O. W. Dickey, Watchman (Tallac)	February 1, 1915
O. P. Wehrman, Watchman (Tahoe)	November 1, 1913
Geo. Simpson, Temporary Employee	April 15, 1915
G. E. West, Fourth Class Fish Culturist	April 1, 1908

Bear Valley Hatchery.

W. L. Gatchell, Fourth Class Fish Culturist	June 20, 1913
G. L. Morrison, Fourth Class Fish Culturist	May 26, 1913

Inyo County Hatchery.

A. E. Glidden, Fourth Class Fish Culturist	January 15, 1914

Almanor Hatchery.

Jas. H. Vogt, Temporary Employee	October 23, 1915

Commercial Fisheries Department.

N. B. Scofield,* In Charge	Special Fishery Investigation	June 1, 1897
	Fishery Expert	February 21, 1914
H. B. Nidever, Fishery Expert		June 29, 1908
R. B. Heacock, Assistant		May 1, 1907

Bureau of Education, Publicity and Research.

H. C. Bryant, Ph.D.,* In Charge	Research Fellow in Zoology; Special Work	January 1, 1911
	Game Expert	September 1, 1914

Sacramento office, Forum Building.

Under direction of Commissioner F. M. Newbert.

Geo. Neale	Assistant	April 1, 1903
	Assistant in Charge	October 1, 1911
Chas. L. Gilmore, Engineer-Draftsman		June 19, 1912
Geo. T. Hanley, Clerk and Stenographer		February 16, 1914
Leslie Rust, Office Boy		November 1, 1913

Los Angeles office, 426 Union League Building.

Under direction of Commissioner M. J. Connell.

H. I. Pritchard, Assistant In Charge	August 1, 1900
E. L. Hedderly, Assistant Research and Publicity	November 22, 1915
E. A. McKee, Clerk and Stenographer	September 16, 1911

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*Employment not continuous.

LIST OF REGULAR DEPUTIES.

San Francisco District.

Name and headquarters.	Date first appointed
Alameda County.	
J. L. Bundock, Oakland	September 1, 1910
Earle Downing, Pleasanton	August 27, 1908
Del Norte County.	
H. S. Prescott, Crescent City	August 16, 1915
Fresno County.	
S. L. N. Ellis, Fresno	May 1, 1909
F. A. Bullard, Dunlap	February 1, 1912
Tipton Mathews, Coalinga	October 6, 1911
Humboldt County.	
Earl P. Barnes, Eureka	May 1, 1911
Theo. M. Benson, Fortuna	October 1, 1911
Kings County.	
E. W. Smalley, Hanford	May 1, 1909
Marin County.	
D. H. Hoen, San Rafael	September 23, 1910
Mendocino County.	
B. H. Miller, Ukiah	July 1, 1908
Chas. R. Perkins, Fort Bragg	June 15, 1912
John H. Hellard, Laytonville	July 17, 1915
Merced County.	
R. S. Kimball, Merced	October 22, 1914
Monterey County.	
P. H. Oyer, Pacific Grove	May 1, 1912
Frank Shook, Salinas	November 15, 1907
Napa County.	
W. J. Moore, Napa	September 1, 1907
San Francisco County.	
M. S. Clark, San Francisco	August 20, 1911
Ed. Boyle, San Francisco	August 13, 1913
J. W. Gallaway (Launch "Barracuda"), San Francisco	October 1, 1914
H. H. Hunt, San Francisco	October 1, 1914
San Mateo County.	
John Burke, Colma	July 1, 1915
Santa Clara County.	
I. L. Koppel, San Jose	August 1, 1909
Santa Cruz County.	
J. H. Hill, Watsonville	December 13, 1907
T. F. Maloney, Santa Cruz	October 1, 1914
Sonoma County.	
A. F. Lea, Cloverdale	April 25, 1903
Henry Lencioni, Santa Rosa	February 15, 1910
Paul Smith, Guerneville	June 15, 1912
Solano County.	
W. H. Armstrong, Vallejo	April 1, 1907

Name and headquarters.	Date first appointed
Stanislaus County.	
J. E. Newsome, Newman	December 1, 1906
Tuolumne County.	
Geo. F. Grant, Columbia	February 2, 1914
Tulare County.	
O. P. Brownlow, Porterville	July 1, 1914
Launch "Quinnat."	
H. E. Foster, Vallejo	April 15, 1912
Chas. M. Bouton, Vallejo	January 1, 1916

Sacramento District.

Amador County.	
Frank S. Parke, Sutter Creek	January 10, 1912
Calaveras County.	
Dr. D. E. Roberts, Murphys	October 1, 1911
Colusa County.	
S. J. Carpenter, Maxwell	October 1, 1910
El Dorado County.	
Euell Gray, Placerville	September 1, 1911
Lassen County.	
Frank P. Cady, Susanville	November 15, 1909
Modoc County.	
Geo. W. Courtright, Canby	October 25, 1912
Nevada County.	
R. C. O'Connor, Grass Valley	November 17, 1910
J. H. Sanders, Truckee	May 1, 1916
Placer County.	
Chester Scroggs, Loomis	August 17, 1911
Plumas County.	
L. J. Warren, Taylorsville	October 1,1914
Sacramento County.	
C. H. Biemer, Sacramento	January 29, 1912
W. J. Green, Sacramento	November 1, 1911
San Joaquin County.	
Albert Tracy (Launch), Stockton	March 4, 1916
Richard Squire, Lodi	October 1, 1910
Shasta County.	
J. S. White, Castella	October 1, 1908
Siskiyou County.	
J. W. Harris, Greenview	July 1, 1913
L. A. Streuber, Gazelle	October 1, 1914
Sutter County.	
E. D. Ricketts, Live Oak	October 1, 1910
Tehama County.	
T. W. Birmingham, Red Bluff	September 11, 1903
Trinity County.	
G. O. Laws, Weaverville	February 1, 1908
Yolo County.	
R. L. Sinkey, Woodland	December 1, 1911

Los Angeles District.

Name and headquarters	Date first appointed
Inyo County.	
E. H. Ober, Big Pine	September 15, 1908
Kern County.	
A. J. Stout, Bakersfield	April 1, 1914
Los Angeles County.	
H. D. Becker, Los Angeles	October 1, 1914
Orange County.	
W. K. Robinson (on furlough), El Toro	October 25, 1909
Riverside County.	
Jas. H. Gyger, Elsinore	October 4, 1911
San Bernardino County.	
W. C. Malone, San Bernardino	February 1, 1916
San Diego County.	
Webb Toms, San Diego	April 1, 1907
A. T. Norton, (Crawfish Inspector), San Diego	February 11, 1913
San Luis Obispo County.	
C. S. Bauder, San Luis Obispo	October 1, 1914
Santa Barbara County.	
H. J. Abels, Santa Maria	August 1, 1905
Ventura County.	
J. J. Barnett, Ventura	January 19, 1914

Hayward Game Farm.

W. N. Dirks, Superintendent	December 15, 1911

INVENTORY OF STATE PROPERTY—FISH AND GAME COMMISSION DECEMBER 31, 1915.

Recapitulation.

Office equipment, San Francisco	$3,051 76	
Assistants' equipment, San Francisco District	269 45	
Store-room at Ferry, San Francisco	193 65	
		$3,514 86
Office equipment, Sacramento	$743 75	
Assistants' equipment, Sacramento District	576 90	
		1,320 65
Office equipment, Los Angeles	$537 45	
Assistants' equipment, Los Angeles District	92 00	
		629 45
Office equipment, Fresno*	$765 20	
Assistants' equipment, Fresno District	22 65	
		787 85
Scientific investigation		518 45
Game Farm, Hayward—Including cottage, tank-house, pond, equipment and stock		7,001 20
Launch "Quinnat" and equipment	$4,543 55	
Launch "Shad" and equipment	825 84	
Launch "Audubon" and equipment	229 08	
Launch "Barracuda" and equipment	799 92	
		6,398 39
Sisson Hatchery, including fish distribution car and equipment, buildings, ponds and furnishings		46,344 97

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*Office closed February 1, 1916, and property moved to San Francisco office.

Klamath River Stations.

Bogus Creek	$419 45		
Camp Creek	255 45		
Gottville	150 00		
Ferry	3 50		
Shovel Creek	38 40		
Copco	50 00		
		916 80	
Burney Creek Station		578 65	

Tahoe Hatcheries.

Tahoe City	$9,823 80		
Tallac	5,276 19		
Glen Alpine	30 40		
		15,130 39	
Price Creek Hatchery†	$ 3,633 85		
Brookdale Hatchery	17 05		
Scott Creek Station	19 95		
Ukiah Hatchery	84 95		
Snow Mountain Station	1,003 34		
Bear Valley Hatchery	93 00		
Marlett Lake Hatchery	3 40		
		4,855 54	
			$87,997 20

SISSON HATCHERY.

Fish Distribution by Counties. Season 1914.

ALAMEDA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Earle Downing	June 9	Stony Brook	12,000
Earle Downing	June 9	Alameda Creek	18,000
Earle Downing	June 9	Trout Creek	4,000
Earle Downing	June 9	Arroyo Bayo	24,000
Earle Downing	June 9	Trout Creek	9,000
Earle Downing	June 9	Mocho Creek	18,000
Earle Downing	June 9	Livermore Creek	6,000
Earle Downing	June 9	Cedar Mountain Creek	3,000
Earle Downing	June 9	San Lorenzo River	15,000
Earle Downing	June 9	Keiser Creek	9,000
Earle Downing	June 9	Palmores Creek	36,000
Earle Downing	June 9	Bellinas Creek	6,000
Earle Downing	June 9	Crow Creek	18,000
Earle Downing	June 9	Zeile Creek	9,000
Earle Downing	June 9	Alameda Creek	15,000
Earle Downing	June 9	La Costa Creek	15,000
Earle Downing	June 9	Indian Creek	9,000
Earle Downing	June 9	Calaveras Creek	12,000
Earle Downing	June 9	Apperson Creek	9,000
		Total	247,000

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†Moved to Fort Seward Hatchery February 1, 1916.

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

ALPINE COUNTY.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
Grant P. Merrill	Sept. 9	Silver Creek	9,000
Grant P. Merrill	Sept. 9	Pleasant Valley Creek	6,000
Grant P. Merrill	Sept. 9	West Fork of Carson	15,000
Chas. Tryson	Sept. 9	North Fork of Mokelumne River	12,000
Chas. Tryson	Sept. 9	Highland Creek	12,000
		Total	54,000

Distribution of Loch Leven Trout.

Grant P. Merrill	Sept. 9	Hot Spring Creek	6,000
Grant P. Merrill	Sept. 9	West Fork of Carson	14,000
		Total	20,000

AMADOR COUNTY.

Distribution of Rainbow Trout.

W. G. Snyder	Sept. 24	Mokelumne River	2,000
W. G. Snyder	Sept. 24	Mill Creek	2,000
W. G. Snyder	Sept. 24	Tiger Creek	2,000
W. G. Snyder	Sept. 24	Antelope Creek	2,000
G. C. Bruce	Sept. 24	North Fork of Mokelumne River	4,000
G. C. Bruce	Sept. 24	Blue Creek	4,000
		Total	16,000

Distribution of Eastern Brook Trout.

Sutter Creek Fish Club	Sept. 24	Sutter Creek	10,000

Distribution of Loch Leven Trout.

Sutter Creek Fish Club	Sept. 24	Sutter Creek	14,000

Distribution of Black Spotted Trout.

W. G. Snyder	Sept. 24	Mokelumne River	3,000
W. G. Snyder	Sept. 24	Mill Creek	3,000
W. G. Snyder	Sept. 24	Tiger Creek	3,000
W. G. Snyder	Sept. 24	Antelope Creek	3,000
Jackson Merchants Assn.	Sept. 24	Mill Creek	12,000
Jackson Merchants Assn.	Sept. 24	Panther Creek	12,000
Jackson Merchants Assn.	Sept. 24	Tiger Creek	12,000
S. D. Calvin	Sept. 24	Mill Creek	6,000
S. D. Calvin	Sept. 24	Tiger Creek	6,000
G. C. Bruce	Sept. 24	North Fork of Mokelumne River	6,000
G. C. Bruce	Sept. 24	Blue Creek	6,000
		Total	72,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

BUTTE COUNTY.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
Leonard Terrell	July 2	Philbrook	15,000
Clay Buchanan	July 2	West Branch Feather River	3,000
Clay Buchanan	July 2	Rebsen Ravine	6,000
Clay Buchanan	July 2	Cole Canyon	6,000
Bert F. Kauffman	July 2	North Fork of West Branch of Feather River	30,000
W. J. Whittier	July 2	North Fork of West Branch of Feather River	21,000
F. M. Thatcher	July 2	North Fork of West Branch of Feather River	24,000
A. J. Hanley	July 2	West Branch of Feather River	4,000
A. J. Hanley	July 2	Butte Creek	6,000
William Cabberlin	Aug. 20	Berry Creek	12,000
Butte Meadows Fishing Club	Sept. 18	Willow Creek	12,000
Butte Meadows Fishing Club	Sept. 18	Colby Creek	12,000
		Total	151,000

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
Leonard Terrell	July 2	Philbrook	8,000
Clay Buchanan	July 2	West Branch of Feather River	10,000
Lee Richardson	Aug. 30	Mud Creek	14,000
Al. Lindquist	Sept. 8	Little Chico Creek	12,000
Butte Meadows Fishing Club	Sept. 18	Butte Creek	16,000
Annie E. K. Bidwell	Sept. 18	Chico Creek	20,000
		Total	80,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
W. J. Whittier	July 2	North Fork of West Branch of Feather River	8,000
A. J. Hanley	July 2	West Branch of Feather River	10,000
A. J. Hanley	July 2	Butte Creek	5,000
J. C. Carter	July 2	Big Chico Creek	24,000
Butte Meadows Fishing Club	Sept. 18	Bull Creek	8,000
		Total	55,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Bert F. Kauffman	July 2	North Fork of West Branch of Feather River	10,000
W. J. Whittier	July 2	North Fork of West Branch of Feather River	10,000
F. M. Thatcher	July 2	North Fork of West Branch of Feather River	20,000
W. E. Kemf	July 2	Big Chico Creek	10,000
William Cabberlin	Aug. 20	Berry Creek	8,000
		Total	58,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

CALAVERAS COUNTY.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
T. W. Taylor	Sept. 24	South Fork of Mokelumne River	18,000
Claude T. Smith	Sept. 24	North Fork of Mokelumne River	9,000
Claude T. Smith	Sept. 24	Bear Creek	9,000
P. S. Peek	Sept. 24	South Fork of Mokelumne River	9,000
P. S. Peek	Sept. 24	Esperanza Creek	9,000
		Total	54,000

Distribution of Loch Leven Trout.

T. W. Taylor	Sept. 24	Licking Fork of Mokelumne River	10,000
Sam E. Redmond	Nov. 12	North Fork of Stanislaus River	2,000
Ben Stephens	Nov. 12	O'Neal's Creek	4,000
M. P. Avery	Nov. 12	San Antone Creek	4,000
		Total	20,000

Distribution of Rainbow Trout.

T. W. Taylor	Sept. 24	South Fork of Mokelumne River	6,000
Claude T. Smith	Sept. 24	Middle Fork of Mokelumne River	4,000
Claude T. Smith	Sept. 24	North Fork of Mokelumne River	4,000
P. S. Peek	Sept. 24	South Fork of Mokelumne River	8,000
Sam E. Redmond	Nov. 12	North Fork of Stanislaus River	2,000
Ben Stephens	Nov. 12	San Antone Creek	4,000
M. P. Avery	Nov. 12	San Antone Creek	4,000
		Total	32,000

COLUSA COUNTY

Distribution of Rainbow Trout.

Lovelace & Karrth	July 29	North Fork of Stony Creek	6,000
A. C. Kaufman	Nov. 16	Little Stony Creek	4,000
		Total	10,000

Distribution of Loch Leven Trout.

Lovelace & Karrth	July 29	Middle Fork of Stony Creek	6,000
Lovelace & Karrth	July 29	Paradise Creek	4,000
A. C. Kaufman	Nov. 16	Little Stony Creek	20,000
		Total	30,000

DEL NORTE COUNTY.

Distribution of Quinnat Salmon.

Fish and Game Com.	May 1	Smith's River	100,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

EL DORADO COUNTY.

Distribution of Bass.

Applicant	Date	Water stocked	Number
F. G. Warner and D. M. Stevenson	Aug. 21	North Fork of Cosumnes River	50

Distribution of Loch Leven Trout.

R. E. Granlees	Sept. 14	Trout Creek	4,000
Tait & Mann	Sept. 14	Tallac Creek	8,000
J. W. S. Buttler	Sept. 14	Echo Lake	12,000
Ralph L. Colwell	Sept. 19	Rock Bound Lake	10,000
Glen Alpine Springs	Sept. 19	Half Moon Lake	6,000
Glen Alpine Springs	Sept. 19	Heather Lake	4,000
Glen Alpine Springs	Sept. 19	Grass Lake	2,000
Glen Alpine Springs	Sept. 19	Lost Lake	2,000
Nelson L. Salter	Sept. 19	Granite Lake	4,000
Euell Gray	Nov. 11	American River	6,000
Euell Gray	Nov. 11	Cosumnes River	14,000
		Total	72,000

Distribution of Eastern Brook Trout.

F. J. Pomin	Sept. 14	Richardson Lake	8,000
R. E. Granlees	Sept. 14	Trout Creek	4,000
Tait & Mann	Sept. 14	Little Truckee River	8,000
James Bryson	Sept. 14	South Fork of American River	12,000
J. W. S. Buttler	Sept. 14	Echo Lake	8,000
Ralph L. Colwell	Sept. 19	Rock Bound Lake	8,000
Glen Alpine Springs	Sept. 19	Heather Lake	2,000
Glen Alpine Springs	Sept. 19	Grass Lake	6,000
Glen Alpine Springs	Sept. 19	Lucile Lake	2,000
Glen Alpine Springs	Sept. 19	Margery Lake	2,000
Nelson L. Salter	Sept. 19	Eagle Lake	3,000
Nelson L. Salter	Sept. 19	Eagle Creek	1,000
Murphy Bros. & Morgan	Sept. 19	Hank Richardson Creek	10,000
Euell Gray	Nov. 11	American River	50,000
		Total	124,000

Distribution of Rainbow Trout.

F. J. Pomin	Sept. 14	Richardson Lake	8,000
Tait & Mann	Sept. 14	Fallen Leaf Lake	4,000
Ralph L. Colwell	Sept. 19	Rubicon River	6,000
Glen Alpine Springs	Sept. 19	Half Moon Lake	2,000
Glen Alpine Springs	Sept. 19	Heather Lake	2,000
Glen Alpine Springs	Sept. 19	Grass Lake	4,000
Murphy Bros. & Morgan	Sept. 19	Buck Lake	8,000
Euell Gray	Nov. 11	American River	30,000
		Total	64,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

FRESNO COUNTY.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Hall & McAfee	Sept. 1	South Fork of Kings River	8,000
W. H. Tower	Sept. 30	Pitman Creek	4,000
San Joaquin and Eastern Railroad	Sept. 30	Huntington Lake	90,000
		Total	102,000

Distribution of Rainbow Trout.

W. H. Trowes	Sept. 30	Balsam Creek	4,000
San Joaquin and Eastern Railroad	Sept. 30	Huntington Lake	50,000
		Total	54,000

Distribution of Loch Leven Trout.

Hall & McAfee	Sept. 1	South Fork of Kings River	8,000
W. H. Trowes	Sept. 1	Big Creek	8,000
San Joaquin and Eastern Railroad	Sept. 30	Huntington Lake	44,000
		Total	60,000

GLENN COUNTY.

Distribution of Rainbow Trout.

B. H. Mace	July 29	Elk Creek	2,000
B. H. Mace	July 29	Salt Creek	6,000
		Total	8,000

Distribution of Eastern Brook Trout.

B. H. Mace	July 29	Elk Creek	6,000
B. H. Mace	July 29	Salt Creek	10,000
		Total	16,000

Distribution of Loch Leven Trout.

B. H. Mace	July 29	Elk Creek	10,000
B. H. Mace	July 29	Salt Creek	6,000
		Total	16,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

INYO COUNTY.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
D. M. Nicoll	Sept. 1	Lone Pine Creek	10,000
Roscoe Parkinson	Sept. 1	Lone Pine Creek	10,000
		Total	20,000

Distribution of Loch Leven Trout.

Hall & McAfee	Sept. 1	Big Pine Creek	4,000
Hall & McAfee	Sept. 1	Birch Creek	2,000
Hall & McAfee	Sept. 1	Baker Creek	2,000
D. M. Nicoll	Sept. 1	Tuttle Creek	10,000
Roscoe Parkinson	Sept. 1	Lone Pine Creek	10,000
		Total	28,000

Distribution of Black Spotted Trout.

Hall & McAfee	Sept. 1	Big Pine Lake	6,000
Hall & McAfee	Sept. 1	Little Pine Lake	6,000
D. M. Nicoll	Sept. 1	Haiwee Reservoir (public)	18,000
D. M. Nicoll	Sept. 1	Richtes Creek	12,000
Roscoe Parkinson	Sept. 1	Lone Pine Lakes	16,000
Roscoe Parkinson	Sept. 1	Tuttle Creek	14,000
		Total	72,000

KERN COUNTY.

Distribution of Sunfish.

Chanslor Canfield Oil Co.	Oct. 17	Reservoir at Fellows	25

Distribution of Loch Leven Trout.

R. R. Martin	Aug. 30	Alder Creek	4,000
L. P. Allen	Aug. 31	Erskine Creek	2,000
W. W. Laidley	Oct. 9	Rancherie Creek	4,000
Kern River Trout Club	Oct. 9	Cedar Creek	10,000
Kern River Trout Club	Oct. 9	Poso Creek	6,000
		Total	26,000

Distribution of Eastern Brook Trout.

Kern River Trout Club	Oct. 9	Cedar Creek	5,000
Kern River Trout Club	Oct. 9	Lumbro Creek	9,000
		Total	14,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
R. R. Martin	Aug. 30	Alder Creek	4,000
L. P. Allen	Aug. 31	Erskine Creek	2,000
W. W. Laidley	Oct. 9	Rancherie Creek	4,000
Kern River Trout Club	Oct. 9	Cedar Creek	8,000
		Total	18,000

LAKE COUNTY.

Distribution of Steelhead Trout.

E. W. Schwartz	July 25	Kelsey Creek	12,000

Distribution of Loch Leven Trout.

E. W. Schwartz	July 25	Kelsey Creek	24,000
Allen Springs Club	July 25	Bartlett Creek	8,000
		Total	32,000

Distribution of Rainbow Trout.

Allen Springs Club	July 25	North Fork Cache Creek	8,000

LASSEN COUNTY.

Distribution of Black Spotted Trout.

Frank P. Cady	Oct. 4	Susan River	30,000
Red River Lumber Co.	Oct. 4	Hamilton Branch, North Fork Feather River	5,000
Red River Lumber Co.	Oct. 4	Rock Creek	4,000
Red River Lumber Co.	Oct. 4	Robbers Creek	6,000
		Total	45,000

Distribution of Loch Leven Trout.

Frank P. Cady	Oct. 4	Susan River	2,000
Frank P. Cady	Oct. 4	Eagle Lake	10,000
Frank P. Cady	Oct. 4	Butte Lake	8,000
Ray C. Bogart	Oct. 4	Hamilton Branch, North Fork Feather River	20,000
Red River Lumber Co.	Oct. 4	Robbers Creek	10,000
		Total	50,000

Distribution of Rainbow Trout.

Frank P. Cady	Oct. 4	Susan River	8,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

LOS ANGELES COUNTY.

Distribution of Sunfish.

Applicant	Date	Water stocked	Number
J. A. Crane	Nov. 5	Little Matthewson Lake	100

Distribution of Bass.

Applicant	Date	Water stocked	Number
Los Angeles Dept. Public Service	Oct. 18	Dry Canyon Reservoir	150
H. W. O'Melveny	Nov. 5	Reservoir	100
		Total	250

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
G. E. Little	Oct. 29	San Jose Creek	3,000
G. E. Little	Oct. 29	Mission Creek	3,000
G. E. Little	Oct. 29	Lower waters of San Gabriel	6,000
H. W. O'Melveny	Nov. 5	San Gabriel River	30,000
		Total	42,000

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
H. W. O'Melveny	Nov. 5	San Gabriel River	20,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
W. J. Sanborn	Oct. 18	Bear Canyon	8,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
William G. Kerckhoff	Oct. 18	San Antonio Creek	10,000
O. L. Roberts	Nov. 5	Big Santa Anita	2,000
O. L. Roberts	Nov. 5	Winter Creek	2,000
O. L. Roberts	Nov. 5	East Fork of Big Santa Anita	4,000
H. W. O'Melveny	Nov. 5	San Gabriel River	80,000
		Total	98,000

MARIN COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Cal. Anglers' Association	Aug. 2	Olema Creek	30,000
Cal. Anglers' Association	Aug. 2	Paper Mill Creek	45,000
Cal. Anglers' Association	Aug. 2	Lake Lagunitas	37,500
W. Gaston Donieque	Aug. 2	Frank Valley Creek	10,000
W. Gaston Donieque	Aug. 2	Sheep Ravine Creek	5,000
		Total	127,500

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
Cal. Anglers' Association	Aug. 2	Lake Lagunitas	30,000

Distribution of Eastern Brook Trout.

Con. Roman	Aug. 2	Cheda Creek	2,000

MARIPOSA COUNTY.

Distribution of Black Spotted Trout.

Cal. Anglers' Association	Oct. 13	Moss Canyon Creek	25,000
Cal. Anglers' Association	Oct. 13	Crane Creek	50,000
Cal. Anglers' Association	Oct. 13	Bridal Vail Creek	30,000
		Total	105,000

Distribution of Loch Leven Trout.

Jno. S. Washburn	Oct. 9	South Fork of Merced River	6,000
Jno. S. Washburn	Oct. 9	Two lakes, about twenty miles east of Wawona	4,000
Edwin T. Huffman	Oct. 9	Miami Creek	8,000
Cal. Anglers' Association	Oct. 13	Moss Canyon Creek	20,000
Cal. Anglers' Association	Oct. 13	Bridal Veil Creek	30,000
Cal. Anglers' Association	Oct. 13	Yosemite Creek	30,000
Yosemite Valley R. R. Co.	Oct. 13	Merced River	36,000
		Total	134,000

Distribution of Eastern Brook Trout.

Yosemite Valley R. R. Co.	Oct. 13	Merced River	10,000

Distribution of Rainbow Trout.

Edwin T. Huffman	Oct. 9	Miami Creek	4,000
Yosemite Valley R. R. Co.	Oct. 13	Merced River	4,000
		Total	8,000

MENDOCINO COUNTY.

Distribution of Steelhead Trout.

Cal. Western R. R.	July 7	Pudding Creek	30,000
Cal. Western R. R.	July 8	Noyo River	240,000
J. W. Lowell and W. M. Standley	July 8	Jaun Creek	25,000
		Total	295,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

MERCED COUNTY.

Distribution of Catfish.

Applicant	Date	Water stocked	Number
Joseph Paxton	Oct. 17	Reservoir	35

MODOC COUNTY.

Distribution of Black Spotted Trout.

Jesse Parman	Aug. 20	Emerson Creek	6,000
C. G. Spargur	Aug. 20	South Fork of Pit River	3,000
F. W. Caldwell	Aug. 20	Thomas Creek	3,000
J. T. Spaulding	Aug. 20	Thomas Creek	12,000
W. H. Flournoy	Aug. 20	South Fork of Pit River	3,000
James Thomas	Aug. 20	Big Doby Reservoir	3,000
James Poindexter	Aug. 20	Davis Creek	12,000
John Wall	Aug. 20	Goose Lake	9,000
T. F. Donnaway	Aug. 20	Goose Lake	6,000
		Total	57,000

Distribution of Loch Leven Trout.

Jesse Parman	Aug. 20	Eagle Creek	4,000
C. G. Spargur	Aug. 20	South Fork of Pit River	4,000
F. W. Caldwell	Aug. 20	Thomas Creek	2,000
J. T. Spaulding	Aug. 20	Thomas Creek	4,000
W. H. Flournoy	Aug. 20	South Fork of Pit River	4,000
James Thomas	Aug. 20	Big Doby Reservoir	4,000
James Poindexter	Aug. 20	Davis Creek	4,000
T. F. Donnaway	Aug. 20	Goose Lake	4,000
L. H. Sisson	Aug. 20	East Creek	6,000
Omar Camtrall	Aug. 20	Fitzhugh Creek	4,000
		Total	40,000

Distribution of Eastern Brook Trout.

Grover Wimer	Aug. 20	Mill Creek	4,000
James Thomas	Aug. 20	Big Doby Reservoir	4,000
Omar Cantrall	Aug. 20	Fitzhugh Creek	4,000
		Total	12,000

Distribution of Rainbow Trout.

C. G. Spargur	Aug. 20	South Fork of Pit River	4,000
L. H. Sisson	Aug. 20	East Creek	2,000
		Total	6,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

MONTEREY COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
J. L. D. Roberts	June 17	Carmel River	60,000
J. L. D. Roberts	June 17	Dand Creek	3,000
J. L. D. Roberts	June 17	Sobrauns Creek	3,000
J. L. D. Roberts	June 17	Garrapatis Creek	6,000
J. L. D. Roberts	June 17	Rocky Creek	12,000
J. L. D. Roberts	June 17	Mill Creek	12,000
J. L. D. Roberts	June 17	Little Sur River	24,000
J. L. D. Roberts	June 17	Big Sur	15,000
A. H. Abbott	June 14	Arroyo Seco	15,000
T. P. Joy	Oct. 29	Mud Creek	3,000
T. P. Joy	Oct. 29	Gabilan Creek	9,000
		Total	162,000

Distribution of Loch Leven Trout.

S. E. Whitcher	Oct. 29	Horse Canyon Creek	6,000
S. E. Whitcher	Oct. 29	Pajaro River	6,000
S. E. Whitcher	Oct. 29	Piney Creek	2,000
S. E. Whitcher	Oct. 29	Arroyo Seco	2,000
		Total	16,000

NAPA COUNTY.

Distribution of Steelhead Trout.

West & Keyser	July 25	Napa Creek	37,500
C. H. Drake	July 25	Richie Creek	30,000
City of Vallejo	July 25	Lake Madigan	60,000
J. E. Beard	July 25	Rector Canyon	25,000
J. P. Orr	July 25	Soscol Creek	15,000
Clifford Clark	July 29	Capell Creek	18,000
Clifford Clark	July 29	Trout Creek	18,000
		Total	203,500

Distribution of Loch Leven Trout.

City of Vallejo	Oct. 25	Lake Fry	22,000
L. A. Pritchard	Oct. 25	Small lakes	4,000
		Total	26,000

Distribution of Eastern Brook Trout.

L. A. Pritchard	July 25	Small lakes	4,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

NEVADA COUNTY.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
S. F. Fly Casting Club	Sept. 8	Truckee River	12,000
Boca Mill Co.	Sept. 8	Little Truckee River	16,000
Truckee Chamber of Com.	Sept. 19	Mill Pond, Truckee River	6,000
Grass Val. Sportsman Club	Oct. 2	Bear River	16,000
Grass Val. Sportsman Club	Oct. 2	Indian Canyon	4,000
Grass Val. Sportsman Club	Oct. 2	Haas Lake	2,000
Grass Val. Sportsman Club	Oct. 2	South Yuba River	8,000
		Total	64,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
S. McKay	July 19	Juniper Creek	6,000
Boca Mill Co.	Sept. 8	Juniper Creek	10,000
Pacific Gas and Elec. Co.	Sept. 13	Fordyce Creek	7,000
Pacific Gas and Elec. Co.	Sept. 13	South Yuba River	7,000
Truckee Chamber of Com.	Sept. 13	Mardis Creek	14,000
Grass Val. Sportsman Club	Oct. 2	Shebley's Creek	4,000
Grass Val. Sportsman Club	Oct. 2	Upper Wolf Creek	4,000
Grass Val. Sportsman Club	Oct. 2	Rattlesnake Creek	4,000
Grass Val. Sportsman Club	Oct. 2	Squirrel Creek	4,000
Grass Val. Sportsman Club	Oct. 2	South Yuba River	14,000
		Total	74,000

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
S. F. Fly Casting Club	Sept. 8	Truckee River	16,000
Pacific Gas and Elec. Co.	Sept. 13	Bloody River	20,000
Truckee Chamber of Com.	Sept. 19	Donner Creek	8,000
		Total	44,000

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
E. J. Rees	Sept. 8	Crystal Lake	15,000
Pacific Gas and Elec. Co.	Sept. 13	Fordyce Creek	25,000
Pacific Gas and Elec. Co.	Sept. 13	South Yuba River	20,000
		Total	60,000

ORANGE COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
W. K. Robinson	Nov. 5	Lower Trebuco	6,000
F. A. Foster	Nov. 6	San Juan	18,000
		Total	24,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
W. K. Robinson	Nov. 5	Silverado Creek	4,000
W. K. Robinson	Nov. 5	Santiago Creek	4,000
W. K. Robinson	Nov. 5	Upper Trebuco	4,000
W. K. Robinson	Nov. 5	Upper Trebuco	2,000
F. A. Foster	Nov. 6	San Juan	4,000
		Total	18,000

PLACER COUNTY.

Distribution of Sunfish.

L. G. Merrithew	Aug. 23	Powers Lake	100

Distribution of Black Spotted Trout.

J. G. Dodds	Sept. 8	Secret Canyon	12,000

Distribution of Loch Leven Trout.

H. M. Freeman	July 19	Loch Leven Lakes	16,000
H. M. Freeman	Sept. 8	South Yuba River	4,000
D. M. Ray and G. H. Smith	Sept. 8	North Fork of Middle Fork of North Fork of American River	4,000
D. M. Ray and G. H. Smith	Sept. 8	Grouse Canyon	2,000
J. G. Dodds	Sept 8	Secret Canyon	8,000
Lake Tahoe Railway and Transportation Co.	Sept. 14	Truckee River	12,000
Scott Bros.	Sept. 14	Silver Creek	2,000
Scott Bros.	Sept. 14	Squaw Creek	6,000
W. J. McCleary	Sept. 18	Brushy Canyon	8,000
		Total	62,000

Distribution of Eastern Brook Trout.

S. McKay	July 19	Klondyke Creek	6,000
H. M. Freeman	July 19	South Yuba River	10,000
S. H. Cavitt	July 19	Martis Creek	10,000
William Ewer	July 19	Canyon Creek	8,000
Frank L. Harmon	July 19	Canyon Creek	8,000
W. N. West	July 19	American River	8,000
W. J. McCleary	July 19	Shirttail Canyon	10,000
M. L. West	July 19	Yuba River	6,000
J. B. Knapp	July 19	North Fork of American River	10,000
D. M. Ray and G. H. Smith	Sept. 8	North Fork of Middle Fork of North Fork of American River	2,000
D. M. Ray and G. H. Smith	Sept. 8	Grouse Canyon	2,000
Lake Tahoe R. & T. Co.	Sept. 14	Barker Creek	3,000
Lake Tahoe R. & T. Co.	Sept. 14	Watson Lake	7,000
Lake Tahoe R. & T. Co.	Sept. 14	Bear Pen Creek	2,000
Tahoe Vista I. Co.	Sept. 14	Griff Creek	8,000
Scott Bros.	Sept. 14	Silver Creek	2,000
Scott Bros.	Sept. 14	Squaw Creek	10,000
F. R. Kohl	Sept. 19	Blackwood Creek	8,000
W. J. McCleary	Nov. 16	North Fork of American River	24,000
		Total	144,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
H. M. Freeman	July 19	South Yuba River	10,000
Frank L. Harmon	July 19	Canyon Creek	8,000
W. N. West	July 19	American River	8,000
W. J. McCleary	July 19	American River	6,000
M. L. West	July 19	Yuba River	4,000
D. M. Ray and G. H. Smith	Sept. 8	North Fork of Middle Fork of North Fork of American River	2,000
D. M. Ray and G. H. Smith	Sept. 8	Grouse Creek	2,000
Lake Tahoe R. & T. Co.	Sept. 14	Truckee River	12,000
		Total	52,000

PLUMAS COUNTY.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
J. W. Middleton	Aug. 7	Grizzly Creek	10,000
J. W. Middleton	Aug. 7	Feather River	10,000
Quincy Chamber of Com.	Aug. 7	Thompson Creek	10,000
Quincy Chamber of Com.	Aug. 7	Mill Creek	6,000
H. P. Porter	Aug. 7	Mill Creek	7,500
H. P. Porter	Aug. 7	Reyes Creek	3,000
H. P. Porter	Aug. 7	Hot Spring Gulch	1,500
H. P. Porter	Aug. 7	Soda Creek	1,500
H. P. Porter	Aug. 7	East Branch	4,500
Chas. Jones	Aug. 13	Gray Eagle Creek	5,000
Chas. Jones	Aug. 13	Frazier Creek	7,000
J. A. Donnerwirth	Aug. 13	Light Creek	20,000
B. F. Darby	Aug. 13	Bucks Creek	4,000
B. F. Darby	Aug. 13	Haskins Creek	2,000
B. F. Darby	Aug. 13	Three Lakes	4,000
W. H. Day	Aug. 20	Rock Creek	2,000
W. H. Day	Aug. 20	Jackass Creek	4,000
W. H. Day	Aug. 20	Chambers Creek	4,000
Roger T. Remick	Aug. 20	Big Bonta Creek	7,000
Roger T. Remick	Aug. 20	Little Bonta Creek	3,000
Chas. Belden	Nov. 16	Yellow Creek	8,000
Chas. Belden	Nov. 16	Chipps Creek	2,000
		Total	126,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Quincy Chamber of Com.	Aug. 7	Greenhorn Creek	10,000
B. F. Pauly and E. P. Vandercook	Aug. 7	Willow Creek	5,000
B. F. Pauly and E. P. Vandercook	Aug. 7	Feather River	2,500
B. F. Pauly and E. P. Vandercook	Aug. 7	Nelson Creek	2,500
W. G. Hoffman	Aug. 7	Clear Creek	8,000
Chas. Jones	Aug. 13	Gray Eagle Creek	5,000
Chas. Jones	Aug. 13	Frazier Creek	5,000
D. N. Rogers	Aug. 13	Big Creek and branches	2,500
D. N. Rogers	Aug. 13	Clear Creek and branches	2,500
D. N. Rogers	Aug. 13	Bear Creek and branches	5,000
J. A. Donnerwirth	Aug. 13	Cooks Creek	14,000
Roger T. Remick	Aug. 20	Big Bonta Creek	7,000
Roger T. Remick	Aug. 20	Little Bonta Creek	3,000
		Total	72,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
J. W. Middleton	Aug. 7	Willow Creek	12,000
J. W. Middleton	Aug. 7	Humbug Creek	12,000
Quincy Chamber of Com.	Aug. 7	Rock Creek	6,000
Quincy Chamber of Com.	Aug. 7	Spanish Creek	24,000
B. T. Pauly and E. P. Vandercook	Aug. 7	Willow Creek	5,000
B. T. Pauly and E. P. Vandercook	Aug. 7	Feather River	5,000
B. T. Pauly and E. P. Vandercook	Aug. 7	Nelson Creek	5,000
D. N. Rogers	Aug. 13	Schnieder Creek	5,000
D. N. Rogers	Aug. 13	Big Creek and branches	12,500
D. N. Rogers	Aug. 13	Clear Creek and branches	5,000
D. N. Rogers	Aug. 13	Bear Creek and branches	7,500
S. A. Pezzola	Aug. 13	Jamison Creek	9,000
S. A. Pezzola	Aug. 13	Eureka Creek	21,000
J. A. Donnerwirth	Aug. 13	Indian Creek	24,000
B. F. Darby	Aug. 13	Haskins Creek	3,000
B. F. Darby	Aug. 13	Mill Creek	6,000
B. F. Darby	Aug. 13	Buck Creek	6,000
W. H. Day	Aug. 20	Rock Creek	5,000
W. H. Day	Aug. 20	Buck Creek	10,000
Roger T. Remick	Aug. 20	Big Bonta Creek	15,000
Roger T. Remick	Aug. 20	Little Bonta Creek	9,000
		Total	207,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
J. W. Middleton	Aug. 7	Grizzly Creek	12,000
J. W. Middleton	Aug. 7	Willow Creek	10,000
J. W. Middleton	Aug. 7	Feather River	14,000
J. C. Donnelly	Aug. 7	Grizzly Creek	8,000
W. C. Hoffman	Aug. 7	Kellogg Creek	2,000
W. C. Hoffman	Aug. 7	Mill Creek	8,000
D. N. Rogers	Aug. 13	Three Lakes	5,000
D. N. Rogers	Aug. 13	Meadow Valley Creek	5,000
S. A. Pezzola	Aug. 13	Jamison Creek	4,000
S. A. Pezzola	Aug. 13	Eureka Lake	16,000
D. N. Rogers	Aug. 13	Greenhorn Creek	8,000
D. N. Rogers	Aug. 13	Spring Garden Creek	4,000
S. A. Pezzola	Aug. 13	Indian Creek	8,000
B. F. Darby	Aug. 13	Chipps Creek	2,000
		Total	106,000

RIVERSIDE COUNTY.

Distribution of Loch Leven Trout.

Ed Holderness	Oct. 18	Fullers Mill Canyon	4,000

Distribution of Eastern Brook Trout.

Ed Holderness	Oct. 18	Dark Canyon	4,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
B. H. Handy and H. T. Grout	Oct. 18	Spring Brook	4,000
Frank S. Johnson	Nov. 5	Coldwater Creek	4,000
John Shaver	Nov. 5	North Fork	6,000
John Shaver	Nov. 5	Strawberry Creek	2,000
John Shaver	Nov. 5	Indian Creek	4,000
		Total	20,000

SACRAMENTO COUNTY.

Distribution of Quinnat Salmon.

Fish and Game Com.	April 27	Sacramento River	335,000

SAN BERNARDINO COUNTY.

Distribution of Eastern Brook Trout.

W. J. Sanborn	Oct. 18	Ice House Creek	4,000
W. J. Sanborn	Oct. 18	Upper San Antonio	8,000
W. L. White	Oct. 18	Noble Creek	2,000
Frank Culver	Nov. 5	Mill Creek, lower	2,000
Frank Culver	Nov. 5	Mill Creek, upper	4,000
Frank Culver	Nov. 5	Mill Creek, second tributary	2,000
Jas. A. Vale	Oct. 30	Lytle Creek	12,000
Jas. A. Vale	Oct. 30	Plunge Creek	4,000
Jas. A. Vale	Oct. 30	South Fork	8,000
		Total	46,000

Distribution of Loch Leven Trout.

W. J. Sanborn	Oct. 18	San Antonio	4,000
W. L. White	Oct. 18	Noble Creek	2,000
Frank Culver	Nov. 5	Falls Creek	2,000
Frank Culver	Nov. 5	Mill Creek, first tributary	4,000
Jas. A. Vale	Oct. 30	Devil Canyon	8,000
Jas. A. Vale	Oct. 30	Waterman Canyon	8,000
Jas. A. Vale	Oct. 30	Cold Creek	8,000
Jas. A. Vale	Oct. 30	Huston Creek	4,000
Jas. A. Vale	Oct. 30	Seeley Creek	6,000
Jas. A. Vale	Oct. 30	Deep Creek	14,000
Jas. A. Vale	Oct. 30	City Creek	8,000
Jas. A. Vale	Oct. 30	Santa Ana River	8,000
		Total	76,000

Distribution of Rainbow Trout.

W. J. Sanborn	Oct. 18	San Antonio	14,000

Distribution of Black Spotted Trout.

Jas. A. Vale	Oct. 18	Big Bear Lake	138,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Large Lake Trout.

Applicant	Date	Water stocked	Number
Jas. A. Vale	Oct. 18	Big Bear Lake	12,000

SAN LUIS OBISPO COUNTY.

Distribution of Steelhead Trout.

San Luis Gun and Rod Club	June 27	See Canyon	12,000
San Luis Gun and Rod Club	June 27	North San Luis	12,000
San Luis Gun and Rod Club	June 27	East San Luis	9,000
San Luis Gun and Rod Club	June 27	West San Luis	6,000
San Luis Gun and Rod Club	June 27	Corral de Piedra	9,000
San Luis Gun and Rod Club	June 27	Steinner Creek	12,000
San Luis Gun and Rod Club	June 27	Islay Creek	12,000
San Luis Gun and Rod Club	June 27	Upper Choro	9,000
San Luis Gun and Rod Club	June 27	Middle Choro	12,000
San Luis Gun and Rod Club	June 27	Lower Choro	9,000
San Luis Gun and Rod Club	June 27	Mono Creek	6,000
San Luis Gun and Rod Club	June 27	Cambria Creek	6,000
San Luis Gun and Rod Club	June 27	Copper Mine Creek	6,000
San Luis Gun and Rod Club	June 27	Tono Creek	6,000
San Luis Gun and Rod Club	June 27	Old Creek	9,000
San Luis Gun and Rod Club	June 27	Prefermo Creek	3,000
San Luis Gun and Rod Club	June 27	Andrews Camp	3,000
San Luis Gun and Rod Club	June 27	Clark Valley	9,000
Dr. C. S. Noble	June 27	Arroyo Grande	30,000
Dr. C. S. Noble	June 27	Lopez Creek	21,000
		Total	201,000

SAN MATEO COUNTY.

Distribution of Steelhead Trout.

Ocean Shore Railroad	June 21	Tobin Creek	30,000
Ocean Shore Railroad	June 21	Dennison Creek	18,000
Ocean Shore Railroad	June 21	Frenchman Creek	18,000
Ocean Shore Railroad	June 21	Lobitos Creek	30,000
Ocean Shore Railroad	June 21	Tunitas Creek	30,000
Ocean Shore Railroad	June 21	Corte Madera	60,000
Ocean Shore Railroad	June 21	San Gregoria	3,000
J. B. Fleming	June 21	San Pedro Creek	30,000
Arthur E. Newman	June 21	Corte Madera	18,000
Arthur E. Newman	June 21	Bear Gulch	27,000
J. M. Huddart	Oct. 28	West Union Creek	7,500
J. M. Huddart	Oct. 28	Squealer Creek	1,250
J. M. Huddart	Oct. 28	Pond Creek	1,250
		Total	274,000

Distribution of Eastern Brook Trout.

Ocean Shore Railroad	June 21	Purisima Creek	4,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Cleveland Forbes	June 20	West Branch El Corte Madera	4,000
Ocean Shore Railroad	June 21	Purisima Creek	16,000
		Total	20,000

SANTA BARBARA COUNTY.

Distribution of Sunfish.

H. J. Abels	July 14	Lompoc city reservoir	14

Distribution of Quinnat Salmon.

H. J. Abels	July 14	Santa Ynez River	24,000

Distribution of Steelhead Trout.

H. J. Abels	July 14	Alamar Creek	3,000
H. J. Abels	July 14	Santa Ynez River	21,000
H. J. Abels	July 14	Sisquoc	9,000
H. J. Abels	July 14	Manzana	3,000
H. J. Abels	July 14	Alamo Creek	6,000
H. J. Abels	July 14	Tepusquet Creek	12,000
H. J. Abels	July 14	Zaca Creek	6,000
H. J. Abels	July 14	Naples Creek	6,000
H. J. Abels	July 14	San Jose Creek	6,000
H. J. Abels	July 14	Guadalupe Creek	3,000
		Total	75,000

Distribution of Loch Leven Trout.

H. J. Abels	July 14	Manzana	6,000
H. J. Abels	July 14	Ballard Creek	2,000
H. J. Abels	July 14	Fir Creek	2,000
H. J. Abels	July 14	Cachuma Creek	2,000
		Total	12,000

Distribution of Eastern Brook Trout.

H. J. Abels	July 14	Sisquoc	6,000
H. J. Abels	July 14	Alamo Creek	2,000
H. J. Abels	July 14	Lion Creek	2,000
		Total	10,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

SANTA CLARA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Earle Downing	June 9	Bear Creek	6,000
Earle Downing	June 9	Valpe Creek	5,000
I. L. Koppel	June 16	Coyote Creek	12,000
I. L. Koppel	June 16	Packwood Creek	9,000
I. L. Koppel	June 16	Los Animos	9,000
I. L. Koppel	June 16	Laurel Creek	6,000
I. L. Koppel	June 16	Packwood Creek	3,000
I. L. Koppel	June 16	Coyote Creek	9,000
I. L. Koppel	June 16	Little Arthur Creek	9,000
I. L. Koppel	June 16	Bodfish Creek	9,000
I. L. Koppel	June 16	Los Animos	6,000
I. L. Koppel	June 16	Valpe Creek	6,000
I. L. Koppel	June 16	Alameda Creek	3,000
I. L. Koppel	June 16	Sweljert Creek	3,000
I. L. Koppel	June 16	Silver Creek	3,000
I. L. Koppel	June 16	Penetentia Creek	9,000
I. L. Koppel	June 16	Guadalupe Creek	18,000
I. L. Koppel	June 16	Almaden Creek	12,000
I. L. Koppel	June 16	Trout Creek	9,000
I. L. Koppel	June 16	Campbell Creek	9,000
I. L. Koppel	June 16	Hooker Creek	3,000
I. L. Koppel	June 16	Gladas Creek	3,000
I. L. Koppel	June 26	Stevens Creek	15,000
I. L. Koppel	June 26	Lyndon Creek	5,000
I. L. Koppel	June 26	Cavanaugh Creek	5,000
I. L. Koppel	June 26	Hooper Creek	5,000
I. L. Koppel	June 26	Austrian Creek	2,500
I. L. Koppel	June 26	Los Gatos Creek	5,000
F. Marriott	June 26	Los Uvas Creek	24,000
E. L. Caldren	Oct. 28	Los Gatos Creek	15,000
		Total	237,500

Distribution of Eastern Brook Trout.

L. F. Cox	June 26	Booker Creek	2,000
L. F. Cox	June 26	Lake Ranch Creek	2,000
L. F. Cox	June 26	Van Ness Creek	4,000
		Total	8,000

SANTA CRUZ COUNTY.

Distribution of Blue Gill Sunfish.

Supervisors Santa Cruz County	Aug. 25	Lagoon near Watsonville	15

Distribution of Perch.

Supervisors Santa Cruz County	Aug. 25	Lagoon near Watsonville	15

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Watsonville Fish and Game Protective Assn.	Oct. 29	Corralitos Creek	9,000
Watsonville Fish and Game Protective Assn.	Oct. 29	Shingle Mill Creek	15,000
Watsonville Fish and Game Protective Assn.	Oct. 29	Diablo Creek	6,000
		Total	30,000

SHASTA COUNTY.

Distribution of Black Spotted Trout.

Dunsmuir Promotion Club	Sept. 6	Little Castle Creek	60,000
Dunsmuir Promotion Club	Sept. 6	Bear Creek	60,000
Dunsmuir Promotion Club	Sept. 6	Hedge Creek	60,000
Dunsmuir Promotion Club	Sept. 6	Soda Creek	60,000
Harmon Bell	Sept. 24	Sacramento River	30,000
		Total	270,000

Distribution of Loch Leven Trout.

W. H. Logan	June 26	Duncon Creek	4,000
W. H. Logan	June 26	Eagle Creek	2,000
C. L. Watson	June 8	Clear Creek	6,000
C. L. Watson	June 8	Five Mile Gulch	2,000
C. L. Watson	June 8	French Gulch Creek	2,000
Kennett Athletic Club	June 28	Big Back Bone Creek	15,000
E. E. Elfendahl	June 28	Slave Creek	8,000
Dunsmuir Promotion Club	Sept. 6	Hedge Creek	10,000
Dunsmuir Promotion Club	Sept. 6	Soda Creek	10,000
Harmon Bell	Sept. 24	Sacramento River	10,000
Sacramento Valley and Eastern Railroad	Oct. 3	Dedalles Creek	10,000
Hazel Gold Mining Co.	Oct. 17	Crystal Creek	8,000
Hazel Gold Mining Co.	Oct. 17	Five Mile Gulch	4,000
Hazel Gold Mining Co.	Oct. 17	Klines Gulch	4,000
		Total	95,000

Distribution of Eastern Brook Trout.

C. L. Watson	June 8	Clear Creek	4,000
C. L. Watson	June 8	Klines Gulch	2,000
		Total	6,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
W. H. Logan	June 26	Duncon Creek	2,000
W. H. Logan	June 26	Eagle Creek	4,000
Kennett Athletic Club	June 28	Big Back Bone Creek	6,000
E. Elfendahl	June 28	Slave Creek	8,000
Dunsmuir Promotion Club	Sept. 6	Little Castle Creek	10,000
Dunsmuir Promotion Club	Sept. 6	Bear Creek	10,000
Seymour S. Bass	Sept. 18	McCloud River	16,000
Sacramento Valley and Eastern Railroad	Oct. 3	Dedalles Creek	10,000
		Total	66,000

SIERRA COUNTY.

Distribution of Rainbow Trout.

W. C. Murdock	Sept. 8	French Creek	5,000
W. C. Murdock	Sept. 8	Little Truckee River	5,000
W. C. Murdock	Sept. 8	Lacy Valley Creek	10,000
		Total	20,000

Distribution of Eastern Brook Trout.

A. S. Nichols	July 19	Sierra Mills Creek	2,000
A. S. Nichols	July 19	Randolph Creek	2,000
G. F. Edwards	Aug. 7	Gold Lake	6,000
G. V. Redmayne	Aug. 13	Gold Lake	10,000
R. W. Thorne	Aug. 20	Badnock Creek	4,000
R. W. Thorne	Aug. 20	Smith Creek	4,000
R. W. Thorne	Aug. 20	Turner Creek	4,000
		Total	32,000

Distribution of Loch Leven Trout.

A. S. Nichols	July 19	Sierra Mills Creek	6,000
A. S. Nichols	July 19	Randolph Creek	2,000
A. S. Nichols	July 19	Strong Creek	4,000
G. F. Edwards	Aug. 7	Gold Lake	6,000
		Total	18,000

Distribution of Black Spotted Trout.

G. V. Redmayne	Aug. 13	Gold Lake	27,000
R. W. Thorne	Aug. 20	Badnock Creek	6,000
R. W. Thorne	Aug. 20	Smith Creek	6,000
R. W. Thorne	Aug. 20	Turner Creek	6,000
		Total	45,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

SISKIYOU COUNTY.

Distribution of Catfish.

Applicant	Date	Water stocked	Number
W. J. Evans	Sept. 5	Meiss Lake	30
A. Caswell	Sept. 15	Dry Lake	50
		Total	80

Distribution of Black Spotted Trout.

B. Casalta	July 11	Wagon Creek	15,000
H. A. Caldwell and Wm. Falkner	Aug. 18	Beaughan Creek	6,000
H. A. Caldwell and Wm. Falkner	Aug. 18	Eddy Lake	6,000
H. A. Caldwell and Wm. Falkner	Aug. 18	Big Springs	6,000
Montague Gun Club	Aug. 19	Little Shasta	15,000
J. F. Kuck	Aug. 21	Box Canyon	36,000
J. F. Kuck	Aug. 21	Sullaway Creek	30,000
J. F. Kuck	Aug. 21	Spring Creek	16,000
J. F. Kuck	Aug. 21	Keysers Meadows	18,000
McCloud River R. R. Co.	Aug. 25	McCloud River	15,000
McCloud River R. R. Co.	Aug. 26	McCloud River	21,000
McCloud River R. R. Co.	Aug. 27	McCloud River	15,000
McCloud River R. R. Co.	Aug. 28	McCloud River	9,000
Dr. W. B. Mason	Oct. 16	Castle Creek	6,000
Sisson Tavern Co.	Nov. 2	Cold Creek	56,000
		Total	270,000

Distribution of Loch Leven Trout.

B. Casalta	July 11	Wagon Creek	8,000
Zick Abrams	Aug. 17	Abrams Lake	33,000
J. A. McCarton	Aug. 18	Shasta River	4,000
J. A. McCarton	Aug. 18	Beaughan Creek	4,000
H. A. Caldwell and W. Falkner	Aug. 18	Carrick Creek	2,000
H. A. Caldwell and W. Falkner	Aug. 18	Parks Creek	2,000
Montague Gun Club	Aug. 19	Little Shasta	10,000
J. F. Kuck	Aug. 21	Box Canyon	16,000
J. F. Kuck	Aug. 21	Sullaway Creek	10,000
J. F. Kuck	Aug. 21	Keysers Meadows	4,000
John W. Benton	Aug. 25	Butte Creek	8,000
O. E. Pile	Aug. 25	Butte Creek	8,000
McCloud River R. R. Co.	Aug. 25	McCloud River	14,000
McCloud River R. R. Co.	Aug. 26	McCloud River	18,000
McCloud River R. R. Co.	Aug. 27	McCloud River	10,000
McCloud River R. R. Co.	Aug. 28	McCloud River	8,000
F. O. Branstetter	Aug. 29	Sacramento River	16,000
Dr. W. B. Mason	Oct. 16	Castle Creek	4,000
Sisson Tavern Co.	Nov. 2	Cold Creek	45,000
		Total	224,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

SISKIYOU COUNTY.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
B. Casalta	July 11	Wagon Creek	8,000
J. M. Estill	July 19	McCloud River	12,000
C. S. Erickson	July 19	Bear Creek	10,000
Zick Abrams	Aug. 17	Abrams Lake	7,000
J. F. Kuck	Aug. 21	Keysers Meadows	10,000
John W. Benton	Aug. 25	Butte Creek	4,000
O. E. Pile	Aug. 25	Butte Creek	6,000
McCloud River R. R. Co.	Aug. 25	McCloud River	10,000
McCloud River R. R. Co.	Aug 23	McCloud River	10,000
McCloud River R. R. Co.	Aug. 27	McCloud River	8,000
McCloud River R. R. Co.	Aug. 28	Bear Creek	12,000
		Total	97,000

Distribution of Rainbow Trout.

J. A. McCarton	Aug. 18	Parks Creek	4,000
W. J. Bray	Aug. 21	Antelope Creek	20,000
J. F. Kuck	Aug. 21	Spring Creek	4,000
McCloud River R. R. Co.	Aug. 25	McCloud River	6,000
McCloud River R. R. Co.	Aug. 26	McCloud River	8,000
McCloud River R. R. Co.	Aug. 27	McCloud River	10,000
Sisson Tavern Co.	Nov. 2	Cold Creek	30,000
		Total	82,000

Distribution of Silver Salmon.

Fish and Game Com.	Aug. 5	Klamath River	12,500

Distribution of Quinnat Salmon.

Fish and Game Com.	Mar. 2	Cold Creek, tributary to Sacramento River	1,500,000
Fish and Game Com.	Mar. 15	Cold Creek, tributary to Sacramento River	750,000
Fish and Game Com.	April 1	Sullaway Creek, tributary to Sacramento River	1,150,000
Fish and Game Com.	April 1	Cold Creek, tributary to Sacramento River	350,000
Fish and Game Com.	April 2	Cold Creek, tributary to Sacramento River	550,000
Fish and Game Com.	April 2	Sullaway Creek, tributary to Sacramento River	800,000
Fish and Game Com.	April 3	Cold Creek, tributary to Sacramento River	150,000
Fish and Game Com.	April 4	Cold Creek, tributary to Sacramento River	2,450,000
Fish and Game Com.	April 4	Sullaway Creek, tributary to Sacramento River	350,000
Fish and Game Com.	April 5	Klamath River	330,000
Fish and Game Com.	April 7	Klamath River	350,000
Fish and Game Com.	April 16	Sullaway Creek, tributary to Sacramento River	400,000
Fish and Game Com.	April 16	Klamath River	335,000
Fish and Game Com.	April 18	Klamath River	335,000
Fish and Game Com.	April 19	Cold Creek, tributary to Sacramento River	277,500
Fish and Game Com.	April 28	Cold Creek, tributary to Sacramento River	2,700,000
Fish and Game Com.	April 29	Cold Creek, tributary to Sacramento River	300,000
Fish and Game Com.	April 30	Cold Creek, tributary to Sacramento River	383,000
Fish and Game Com.	May 5	Spring Creek, tributary to Sacramento River	200,000
Fish and Game Com.	May 6	Spring Creek, tributary to Sacramento River	400,000
Fish and Game Com.	May 7	Sullaway Creek, tributary to Sacramento River	200,000
Fish and Game Com.	May 22	Cold Creek, tributary to Sacramento River	139,115
Fish and Game Com.	May 25	Cold Creek, tributary to Sacramento River	800,000
Fish and Game Com.	Sept. 28	Cold Creek, tributary to Sacramento River	2,100,000
Fish and Game Com.	Oct. 6	Spring Creek, tributary to Sacramento River	1,900,000
		Total	19,199,615

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

SOLANO COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Winters Fish and Game Protective Assn.	July 29	Miller Canyon	15,000

Distribution of Quinnat Salmon.

Applicant	Date	Water stocked	Number
Fish and Game Com.	April 2	Straits of Carquinez	350,000
Fish and Game Com.	April 13	Straits of Carquinez	335,000
Fish and Game Com.	April 19	Straits of Carquinez	315,000
Fish and Game Com.	April 24	Straits of Carquinez	330,000
Fish and Game Com.	May 4	Straits of Carquinez	330,000
		Total	1,660,000

SONOMA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
California Anglers' Assn.	July 29	Sonoma Creek	15,000
California Anglers' Assn.	July 29	Stewart Creek	10,000
California Anglers' Assn.	July 29	Graham Creek	12,500
California Anglers' Assn.	July 29	Ahlers Creek	7,500
W. R. Stearns	July 29	Sonoma Creek	20,000
California Anglers' Assn.	Aug. 2	West Austin Creek	25,000
California Anglers' Assn.	Aug. 2	Ward Creek	12,500
California Anglers' Assn.	Aug. 2	Bear Pen Creek	12,500
A. H. Richardson	Aug. 2	Stewarts Point Creek	10,000
		Total	125,000

TEHAMA COUNTY.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
E. G. Powell	July 28	Antelope Creek	8,000
G. W. Vestal	Aug. 1	Mill Creek	6,000
N. I. Boone	Aug. 1	Paynes Creek	4,000
Louis Winter	Sept. 8	Battle Creek	6,000
H. H. Zimmerman	Sept. 24	Mill Creek	4,000
Paul Stoll	Sept. 24	Elder Creek	6,000
J. A. Owens	Oct. 17	South Cottonwood	4,000
		Total	38,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
C. W. DeLong	July 19	Mill Creek	4,000
J. H. Bradley	Aug. 19	South Fork Cottonwood Creek	8,000
H. H. Zimmerman	Sept. 24	Mill Creek	4,000
J. A. Owens	Oct. 17	South Cottonwood	6,000
		Total	22,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
C. W. DeLong	July 19	Mill Creek	6,000
E. G. Powell	July 28	Antelope Creek	6,000
G. W. Vestal	Aug. 1	Mill Creek	4,000
N. I. Boone	Aug. 1	Paynes Creek	4,000
Louis Winter	Sept. 8	Battle Creek	8,000
Paul Stoll	Sept. 24	Elder Creek	4,000
		Total	32,000

TULARE COUNTY.

Distribution of Black Spotted Trout.

Porterville Fish and Game Protective Assn.	Oct. 9	Kessing Creek	4,000
Porterville Fish and Game Protective Assn.	Oct. 9	North Fork South Tule	8,000
Tule River Shooting and Fishing Club	Oct. 9	Tule River	12,000
Tule River Shooting and Fishing Club	Oct. 9	Boulder Creek	3,000
Tule River Shooting and Fishing Club	Oct. 9	Cory Creek	3,000
Doyle Spring Club	Oct. 9	North Fork Middle Tule	9,000
Doyle Spring Club	Oct. 9	Alder Creek	6,000
H. M. Berry	Oct. 9	Poso Creek	12,000
Ed Cramer	Oct. 9	White River	12,000
		Total	69,000

Distribution of Loch Leven Trout.

Wirsh & Oldfield	Aug. 31	Kern River	30,000
Deer Creek Fish and Game Assn.	Oct. 9	South Deer Creek	10,000
Porterville Fish and Game Protective Assn.	Oct. 9	Kessing Creek	2,000
Porterville Fish and Game Protective Assn.	Oct. 9	North Fork South Tule	4,000
Tule River Shooting and Fishing Club	Oct. 9	Tule River	8,000
Tule River Shooting and Fishing Club	Oct. 9	Boulder Creek	4,000
Tule River Shooting and Fishing Club	Oct. 9	Cory Creek	4,000
Doyle Spring Club	Oct. 9	North Fork Middle Tule	4,000
Doyle Spring Club	Oct. 9	Alder Creek	4,000
H. M. Berry	Oct. 9	Poso Creek	6,000
Ed Cramer	Oct. 9	White River	6,000
		Total	82,000

Distribution of Eastern Brook Trout.

Wirsh & Oldfield	Aug. 31	Kern River	10,000
Deer Creek Fish and Game Assn.	Oct. 9	North Deer Creek	8,000
Doyle Spring Club	Oct. 9	North Fork Middle Tule	3,000
Doyle Spring Club	Oct. 9	Alder Creek	3,000
		Total	24,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Wirsh & Oldfield	Aug. 31	Kern River	10,000
Deer Creek Fish and Game Assn.	Oct. 9	South Deer Creek	2,000
Deer Creek Fish and Game Assn.	Oct. 9	North Deer Creek	4,000
		Total	16,000

TUOLUMNE COUNTY.

Distribution of Black Spotted Trout.

Board of Supervisors, Tuolumne County	Aug. 26	Main Stanislaus River	42,000
Board of Supervisors, Tuolumne County	Aug. 26	South Stanislaus River at Strawberry	15,000
Board of Supervisors, Tuolumne County	Aug. 26	North Tuolumne River at Empire Mills	6,000
Board of Supervisors, Tuolumne County	Aug. 26	Sullivans Creek	9,000
		Total	72,000

Distribution of Loch Leven Trout.

Board of Supervisors, Tuolumne County	Aug. 26	Main Stanislaus River	26,000
Board of Supervisors, Tuolumne County	Aug. 26	South Stanislaus River at Strawberry	24,000
Board of Supervisors, Tuolumne County	Aug. 26	North Tuolumne River at Empire Mills	4,000
Board of Supervisors, Tuolumne County	Aug. 26	Five Mile Creek	8,000
Sam E. Redmond	Nov. 12	North Fork of Stanislaus River	2,000
Lewis H. Elliott	Nov. 12	Main Stanislaus River	9,000
Sierra and San Francisco Power Co.	Nov. 12	Indian Creek	2,000
Sierra and San Francisco Power Co.	Nov. 12	Reservoir, Power House	6,000
		Total	81,000

Distribution of Rainbow Trout.

Board of Supervisors, Tuolumne County	Aug. 26	Main Stanislaus River	8,000
Board of Supervisors, Tuolumne County	Aug. 26	South Stanislaus River at Strawberry	10,000
Board of Supervisors, Tuolumne County	Aug. 26	North Tuolumne River at Empire Mills	8,000
Board of Supervisors, Tuolumne County	Aug. 26	Tuolumne Creek	4,000
A. W. Stewart	Aug. 26	Cow Creek	4,000
Sam E. Redmond	Nov. 12	North Fork Stanislaus River	2,000
		Total	36,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Board of Supervisors, Tuolumne County	Aug. 26	Main Stanislaus River	16,000
Board of Supervisors, Tuolumne County	Aug. 26	South Stanislaus River at Strawberry	4,000
Board of Supervisors, Tuolumne County	Aug. 26	Sullivans Creek	6,000
Board of Supervisors, Tuolumne County	Aug. 26	Shaws Flat Creek	4,000
Board of Supervisors, Tuolumne County	Aug. 26	Tuolumne Creek	4,000
Board of Supervisors, Tuolumne County	Aug. 26	Five Mile Creek	8,000
Board of Supervisors, Tuolumne County	Aug. 26	Clark Stream	10,000
A. W. Stewart	Aug. 26	Cow Creek	4,000
Lewis H. Elliott	Nov. 12	Main Stanislaus River	9,000
Sierra and San Francisco Power Co.	Nov. 12	Indian Creek	2,000
Sierra and San Francisco Power Co.	Nov. 12	Clarks Fork	4,000
Sierra and San Francisco Power Co.	Nov. 12	Middle Fork Stanislaus River	2,000
		Total	73,000

VENTURA COUNTY.

Distribution of Quinnat Salmon.

J. J. Barnett	July 14	Ventura River	10,000
J. J. Barnett	July 14	San Antonio Creek	8,000
J. J. Barnett	July 14	Coyote Creek	6,000
		Total	24,000

Distribution of Steelhead Trout.

R. L. Poplin	July 14	Santa Paula Creek	12,000
J. J. Barnett	July 14	Ventura River	52,000
J. J. Barnett	July 14	San Antonio Creek	8,000
J. J. Barnett	July 14	North Fork Creek	15,000
J. J. Barnett	July 14	Conejo Creek	15,000
S. M. Mosher	Oct. 29	Sespee Creek	39,000
G. C. Hollister	Oct. 29	Agua Blanca	18,000
A. M. Meyer	Oct. 29	Borchard Creek	3,000
A. M. Meyer	Oct. 29	Sycamore Creek	3,000
		Total	165,000

YOLO COUNTY.

Distribution of Black Bass.

M. H. Stitt	Aug. 28	Cache Creek	50

YUBA COUNTY.

Distribution of Black Bass.

Applicant	Date	Water stocked	Number
Dr. L. L. Kimerer	Nov. 16	Middle Dry Creek	32
Dr. L. L. Kimerer	Nov. 16	Lower Dry Creek	37
		Total	69

TAHOE HATCHERY.

Fish Distribution by Counties. Season 1914.

EL DORADO COUNTY.

Distribution of Black Spotted Trout.

Carl Fluegge	June 23	Green Bay, Fallen Leaf Lake	60,000
Tait and Mann	June 23	Taylor Creek	60,000
Carl Fluegge	June 25	Green Bay, Fallen Leaf Lake	60,000
Carl Fluegge	June 27	Taylor Creek	30,000
Carl Fluegge	June 27	Power House Ditch	30,000
J. C. Copeland	June 28	Eagle Lake	30,000
J. C. Copeland	June 28	Power House Ditch	15,000
Carl Fluegge	June 29	Green Bay, Fallen Leaf Lake	40,000
Carl Fluegge	June 29	Power House Ditch	15,000
Tait and Mann	June 30	Taylor Creek	40,000
Tait and Mann	July 2	Power House Ditch	30,000
Tait and Mann	July 2	Taylor Creek	50,000
Tait and Mann	July 2	Cascade Lake	60,000
Tait and Mann	July 5	Taylor Creek	110,000
Tait and Mann	July 5	Tallac Creek	70,000
Tait and Mann	July 6	Tallac Creek	90,000
Tait and Mann	July 6	Power House Ditch	20,000
Bert Granlees	July 6	Flourney Creek	50,000
Bert Granlees	July 7	Taylor Creek	70,000
Carl Fluegge	June 8	Green Bay, Fallen Leaf Lake	50,000
Carl Fluegge	July 8	Power House Ditch	70,000
Bert Granlees	July 8	Little Truckee River, tributary to Lake Tahoe	70,000
Tait and Mann	July 9	Tallac Creek	120,000
Tait and Mann	July 9	Taylor Creek	35,000
Tait and Mann	July 10	Power House Ditch	70,000
Tait and Mann	July 10	Taylor Creek	65,000
Glen Alpine Co.	July 20	Grass Lake	44,500
Glen Alpine Co.	July 21	Susie Lake	44,500
Glen Alpine Co.	July 22	Gilmore Lake	44,500
J. C. Copeland	July 25	Eagle Lake	30,000
A. Richardson	July 30	Little Truckee River, tributary to Lake Tahoe	40,000
Glen Alpine Co.	July 31	Half Moon Lake	44,500
Glen Alpine Co.	Aug. 1	Grass Lake	44,500
Glen Alpine Co.	Aug. 2	Heather Lake	44,500
Glen Alpine Co.	Aug. 3	Gilmore Lake	44,500
Glen Alpine Co.	Aug. 4	Susie Lake	44,500
Glen Alpine Co.	Aug. 4	Glen Alpine Creek	44,500
Tahoe Tavern Co.	Sept. 14	Meeks Creek	30,000
		Total	1,910,500

Distribution of Large Lake Trout.

Tait and Mann	July 26	Taylor Creek	15,000
Tait and Mann	July 30	Taylor Creek	8,000
A. Richardson	July 30	Little Truckee River, tributary to Lake Tahoe	37,000
A. Richardson	July 30	Power House Ditch	6,000
Tahoe Tavern Co.	Sept. 14	Meeks Bay	5,000
		Total	71,000

TAHOE HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

NEVADA COUNTY.

Distribution of Black Spotted Trout.

Truckee Chamber of Com.	Aug. 30	Donner Lake	125,000
Mrs. Geo. W. Kenney	Aug. 31	Lake Independence	50,000
H. M. Freeman	Sept. 14	Lake Sterling	40,000
		Total	215,000

Distribution of Large Lake Trout.

H. M. Freeman	Sept. 14	Lake Sterling	8,000

PLACER COUNTY.

Distribution of Large Lake Trout.

Tahoe Tavern Co.	Aug. 13	Ward Creek	5,000
Tahoe Tavern Co.	Aug. 26	Blackwood Creek	5,000
Tahoe Tavern Co.	Sept. 5	Blackwood Creek	5,000
Tahoe Tavern Co.	Sept. 15	Slim Jim Creek	6,500
		Total	21,500

Distribution of Black Spotted Trout.

Tahoe Tavern Co.	Aug. 11	Slim Jim Creek	50,000
Tahoe Tavern Co.	Aug. 13	Ward Creek	60,000
Tahoe Tavern Co.	Aug. 14	Rock Creek	55,000
F. H. Walker	Aug. 18	New Burton Creek	60,000
Tahoe Tavern Co.	Aug. 26	Blackwood Creek	50,000
Tahoe Tavern Co.	Aug. 27	Rock Creek	40,000
Tahoe Vista Imp. Co.	Sept. 3	Griffen Creek	45,000
Murphy Bros. & Morgan	Sept. 4	McKinney Creek	50,000
Tahoe Tavern Co.	Sept. 5	Blackwood Creek	40,000
Tahoe Tavern Co.	Sept. 7	General Phipps Creek	50,000
Tahoe Tavern Co.	Sept. 8	Ward Creek	60,000
Tahoe Tavern Co.	Sept. 15	Slim Jim Creek	32,000
		Total	592,000

SIERRA COUNTY.

Distribution of Black Spotted Trout.

W. C. Murdock	Aug. 26, 27, 28	Webber Lake	100,000
Mrs. Geo. Kenney	Sept. 1	Lake Independence	50,000
		Total	150,000

Distribution of Large Lake Trout.

W. C. Murdock	Aug. 26, 27, 28	Webber Lake	10,000

PRICE CREEK HATCHERY.

Fish Distribution by Counties. Season 1914.

HUMBOLDT COUNTY.

Distribution of Quinnat Salmon.

Applicant	Date	Water stocked	Number
Fish and Game Com.	Feb. 7	Price Creek	100,000
Fish and Game Com.	Feb. 9	Price Creek	155,000
Fish and Game Com.	Feb. 10	Price Creek	120,000
Fish and Game Com.	Feb. 11	Eel River	210,000
Fish and Game Com.	Feb. 13	Eel River	183,000
Fish and Game Com.	Feb. 14	Eel River	240,000
Fish and Game Com.	Feb. 15	Eel River	220,000
Fish and Game Com.	Feb. 16	Eel River	170,000
Fish and Game Com.	Feb. 18	Price Creek	280,000
Fish and Game Com.	Feb. 19	Price Creek	200,000
Fish and Game Com.	Feb. 20	Price Creek	400,000
Fish and Game Com.	Feb. 26	Price Creek	100,000
Fish and Game Com.	Mar. 6	Price Creek	42,610
Fish and Game Com.	Mar. 7	Price Creek	100,000
Fish and Game Com.	Mar. 8	Price Creek	167,850
Fish and Game Com.	Mar. 9	Price Creek	26,305
Fish and Game Com.	Mar. 10	Price Creek	27,235
Fish and Game Com.	Mar. 10	Eel River	140,000
Arcata Chamber of Com.	Mar. 27	Mad River	75,000
Harbor Commissioners	Mar. 31	Freshwater Creek, tributary to Humboldt Bay	37,500
Eureka Chamber of Com.	Mar. 31	Jacoby Creek, tributary to Humboldt Bay	37,500
Arcata Chamber of Com.	April 4	Mad River	75,000
Arcata Chamber of Com.	April 7	Mad River	75,000
Fish and Game Com.	April 10	Eel River	691,000
Eureka Chamber of Com.	April 10	Elk River, tributary to Humboldt Bay	75,000
		Total	3,948,000

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Harbor Commission	April 29	Jacoby Creek	37,500
Harbor Commission	April 29	Freshwater Creek	37,500
Harbor Commission	April 30	Elk River	75,000
Arcata Chamber of Com.	May 5	Mad River	50,000
Fish and Game Com.	May 6	Price Creek and Eel River	206,000
		Total	406,000

UKIAH HATCHERY.

Fish Distribution by Counties. Season 1914.

MENDOCINO COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Fish and Game Com.	July 7	Eel River	100,000
Mendocino State Hospital	July 9	South Mill Creek	40,000
Cox & Halliday	July 11	Reeves Mill Creek	50,000
B. J. Reilly	July 20	Russian River	35,000
A. P. Weger	July 21	Big River at Orrs Springs	50,000
L. Gobbe	July 23	Cunningham Creek	20,000
W. P. Burke	July 24	Feliz Creek	50,000
Robt. Jones	July 28	Sulphur Creek	20,000
B. M. Bucknell	July 29	Robinson Creek	50,000
Clare Smith	July 30	Cold Creek	14,583
		Total	429,583

TAHOE HATCHERY—Continued.

Fish Distribution by Counties. Season 1914.

SONOMA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
J. M. Alexander	July 14	Warm Spring Creek	30,000
J. M. Alexander	July 14	Mill Creek	35,000
J. M. Alexander	July 14	Little Sulphur Creek	35,000
		Total	100,000

WAWONA HATCHERY.

Fish Distribution by Counties. Season 1914.

MADERA COUNTY.

Distribution of Large Lake Trout.

Fish and Game Com.	July 19	Raynor Creek	6,000

Distribution of Black Spotted Trout.

Fish and Game Com.	July 19	Big Creek	18,000
Fish and Game Com.	July 20	Big Creek	18,000
Fish and Game Com.	July 21	Raynor Creek	14,000
Fish and Game Com.	July 23	Sugar Pine Mill Creek	8,000
Fish and Game Com.	July 27	Big Tree Creek	12,000
		Total	70,000

MARIPOSA COUNTY.

Distribution of Large Lake Trout.

Fish and Game Com.	July 22	Headwaters of Meadow Creek	5,000
Fish and Game Com.	July 24	Small Bridal Veil Creek	10,000
		Total	15,000

Distribution of Black Spotted Trout.

Fish and Game Com.	July 15	Meadow Creek	18,000
Fish and Game Com.	July 16	Headwaters of Miami Creek	3,000
Fish and Game Com.	July 16	Chilnualna Creek	12,000
Fish and Game Com.	July 16	Bruce Creek	6,000
Fish and Game Com.	July 17	Stella Lake	22,000
Fish and Game Com.	July 18	Merced River	25,000
Fish and Game Com.	July 22	Headwaters of Meadow Creek	8,000
Fish and Game Com.	July 24	Small Bridal Veil Creek	6,000
Fish and Game Com.	July 25	Big Creek	9,000
Fish and Game Com.	July 25	Laurel Creek	6,000
Fish and Game Com.	July 26	Merced River	18,000
Fish and Game Com.	July 27	Brush Creek	12,000
		Total	145,000

SISSON HATCHERY.

Fish Distribution by Counties. Season 1915.

ALAMEDA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Earle Downing	June 9	Apperson Creek	8,000
Earle Downing	June 9	Bachelor Canyon	8,000
Earle Downing	June 9	Arbrott Creek	8,000
Earle Downing	June 9	Indian Creek	12,000
Earle Downing	June 9	La Costa Creek, headwaters	24,000
Earle Downing	June 9	La Costa Creek, Shakers Vineyard	12,000
Earle Downing	June 9	Calaveras Creek	10,000
Earle Downing	June 9	Alameda Creek, above Calaveras Creek	20,000
Earle Downing	June 9	Mocho Creek, headwaters	12,000
Earle Downing	June 9	Mocho Creek, above Wilson Creek	8,000
Earle Downing	June 9	Trout Creek	12,000
Earle Downing	June 9	Arroyo Bayou	8,000
Earle Downing	June 9	Acker Creek, small stream tributary to Bayou	8,000
Earle Downing	June 9	Another small creek	2,000
Earle Downing	June 9	Kaiser Creek	24,000
Earle Downing	June 9	North Branch of Dry Creek	8,000
Earle Downing	June 9	San Lorenzo Creek	32,000
Earle Downing	June 9	Palomares Creek	64,000
Earle Downing	June 9	Crow Creek	40,000
Earle Downing	June 9	Bellinas Creek	12,000
Earle Downing	June 9	Goulardt Creek	4,000
Earle Downing	June 9	Ivory Creek	4,000
Earle Downing	June 9	Small stream by Brushy Peak	4,000
Earle Downing	June 9	Stony Brook	12,000
Earle Downing	June 9	Alameda Creek	8,000
Earle Downing	June 9	Arroyo Bayou, between Sunol and Pleasanton	8,000
Earle Downing	June 9	South Fork of Dry Creek	8,000
		Total	380,000

ALPINE COUNTY.

Distribution of Loch Leven Trout.

Chas. W. Tryon	Aug. 17	Highland Lakes	10,000

AMADOR COUNTY.

Distribution of Steelhead Trout.

Sutter Creek Fish Club	July 27	Sutter Creek	6,000
F. V. Rocca	July 27	Silver Lake	15,000
		Total	21,000

Distribution of Loch Leven Trout.

Women's Improvement Club of Jackson	July 27	Silver Lake	10,000
F. V. Rocca	July 27	Silver Lake	10,000
		Total	20,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Women's Improvement Club of Jackson	July 27	Silver Lake	10,000
Sutter Creek Fish Club	July 27	Sutter Creek	10,000
		Total	20,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Sutter Creek Fish Club	July 27	Sutter Creek	21,000

BUTTE COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
A. J. Williams	Aug. 26	Clear Creek	6,000
A. J. Williams	Aug. 26	Berry Creek	6,000
Dr. P. H. Dunbar	Aug. 26	Big Kimshew and tributaries	20,000
Clay Buchanan	Aug. 26	Big Kimshew and tributaries	20,000
A. C. Musselman	Aug. 26	Little Butte Creek	7,500
A. C. Musselman	Aug. 26	Mosquito Creek	2,500
		Total	62,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
W. H. King	June 13	Flea Valley Creek	8,000
W. H. King	June 13	Camp Creek	2,000
W. H. King	June 13	North Fork of Feather River	2,000
J. C. Carter	June 12	Big Chico Creek	18,000
J. H. Richardson	June 12	Mud Creek	9,000
A. J. Stanley	Aug. 26	Little Butte Creek	10,000
		Total	49,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
W. H. King	July 21	Flea Valley Creek	5,000
W. H. King	July 21	Camp Creek	3,000
W. H. King	July 21	Mill Creek	3,000
W. H. King	July 21	Dogwood Creek	3,000
W. H. King	July 21	North Fork of Feather River	4,000
Dr. P. H. Dunbar	Aug. 26	Big Kimshew and tributaries	21,000
Clay Buchanan	Aug. 26	Big Kimshew and tributaries	20,000
A. C. Musselman	Aug. 23	Big Butte Creek	4,000
A. C. Musselman	Aug. 23	Little Butte Creek	4,000
A. C. Musselman	Aug. 23	Mosquito Creek	2,000
A. J. Stanley	Aug. 26	Little Butte Creek	4,000
A. J. Stanley	Aug. 26	West Branch of Feather River	10,000
		Total	86,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
W. H. King	June 13	Flea Valley Creek	3,000
W. H. King	June 13	Camp Creek	1,000
W. H. King	June 13	North Fork of Feather River	2,000
J. C. Carter	June 12	Big Chico Creek	18,000
J. H. Richardson	June 12	Mud Creek	9,000
A. J. Williams	Aug. 26	Clear Creek	2,000
A. J. Williams	Aug. 26	Berry Creek	2,000
Clay Buchanan	Aug. 26	Big Kimshew and tributaries	10,000
A. C. Musselman	Aug. 26	Little Butte Creek	6,000
		Total	53,000

Distribution of Black Spotted Trout.

W. C. Peachy	Sept. 23	North Fork of Feather River	10,000

CALAVERAS COUNTY.

Distribution of Steelhead Trout.

Board of Supervisors of Calaveras County	July 27	North Fork of Mokelumne River	30,000
Board of Supervisors of Calaveras County	July 27	South Fork of Mokelumne River	36,000
Board of Supervisors of Calaveras County	July 27	Licking Fork of Mokelumne River	12,000
Board of Supervisors of Calaveras County	July 27	Middle Fork of Mokelumne River and tributary to Middle Fork	45,000
M. P. Avery	Sept. 9	Stanislaus River at Ramsays	6,000
M. P. Avery	Sept. 9	San Antone Creek at Hodges	4,000
S. E. Redmond	Sept. 9	Big Meadow Creek	4,000
S. E. Redmond	Sept. 9	Upper Stanislaus River	8,000
Sierra and S. F. Power Co.	Sept. 9	Clarks Flat Creek	7,000
Ben Stephens	Sept. 9	San Antone Creek	3,000
Ben Stephens	Sept. 9	O'Neals Creek	3,000
Board of Supervisors of Calaveras County	Sept. 14	San Antone Creek at Dunbar Crossing	2,000
Board of Supervisors of Calaveras County	Sept. 14	Rattlesnake Creek	4,000
Board of Supervisors of Calaveras County	Sept. 14	Stanislaus River	20,000
Board of Supervisors of Calaveras County	Sept. 14	Love Creek	8,000
Board of Supervisors of Calaveras County	Sept. 14	Moran Creek	12,000
Board of Supervisors of Calaveras County	Sept. 14	Peppermint Creek	8,000
Board of Supervisors of Calaveras County	Sept. 14	Murphy's Creek	16,000
		Total	228,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
Board of Supervisors of Calaveras County	July 27	North Fork of Mokelumne River	7,500
Board of Supervisors of Calaveras County	July 27	Middle Fork of Mokelumne River and tributary to Middle Fork	12,500
Ben Stephens	Sept. 9	San Antone Creek	2,000
Ben Stephens	Sept. 9	O'Neals Creek	2,000
		Total	24,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Board of Supervisors of Calaveras County	July 27	North Fork of Mokelumne River	21,000
Board of Supervisors of Calaveras County	July 27	South Fork of Mokelumne River	24,000
Board of Supervisors of Calaveras County	July 27	Licking Fork of Mokelumne River	6,000
Board of Supervisors of Calaveras County	July 27	Middle Fork of Mokelumne River and tributary to Middle Fork	12,000
M. P. Avery	Sept. 9	Stanislaus River at Ramsays	4,000
M. P. Avery	Sept. 9	San Antone Creek at Hodges	2,000
S. E. Redmond	Sept. 9	Upper San Antone Creek	4,000
Ben Stephens	Sept. 9	San Antone Creek	2,000
Ben Stephens	Sept. 9	O'Neals Creek	2,000
Board of Supervisors of Calaveras County	Sept. 14	Sand Meadow	10,000
Board of Supervisors of Calaveras County	Sept. 14	Mill Creek	10,000
Board of Supervisors of Calaveras County	Sept. 14	Beaver Creek	10,000
		Total	107,000

COLUSA COUNTY.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
B. H. Mace	July 21	Little Stony Creek	6,000
B. H. Mace	July 21	Big Stony Creek	17,000
		Total	23,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
B. H. Mace	July 21	Mill Creek	3,000
B. H. Mace	July 21	Little Stony Creek	3,000
B. H. Mace	July 21	Big Stony Creek	9,000
		Total	15,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
B. H. Mace	July 21	Mill Creek	3,000
B. H. Mace	July 21	Big Stony Creek	8,000
		Total	11,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

CONTRA COSTA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Earle Downing	June 9	Morris Canyon	8,000
Earle Downing	July 21	San Ramon Valley Creek	18,000
Earle Downing	July 21	San Ramon	6,000
Earle Downing	July 21	Walnut Creek	6,000
Earle Downing	July 21	Mitchel Canyon	9,000
		Total	47,000

EL DORADO COUNTY.

Distribution of Bass.

F. G. Warner	Aug. 21	North Fork of Cosumnes River	26

Distribution of Steelhead Trout.

El Dorado County Rod and Gun Club	Aug. 15	Middle Fork of American River	85,000
George Neale	July 13	South Fork of American River at Salmon Falls	105,000
George Neale	July 13	South Fork of Amer. River at Mormon Island	66,000
George Neale	July 13	Main River at Prison, above dam	9,000
El Dorado County Rod and Gun Club	Aug. 22	South Canyon, Iowa Canyon	17,500
El Dorado County Rod and Gun Club	Aug. 22	Middle Fork of Cosumnes River	25,000
El Dorado County Rod and Gun Club	Aug. 22	North and Middle Cosumnes	12,500
El Dorado County Rod and Gun Club	Aug. 22	Steeley Fork of Cosumnes River	10,000
El Dorado County Rod and Gun Club	Aug. 22	Big Silver Creek	35,000
El Dorado County Rod and Gun Club	Aug. 21	Middle Fork of Cosumnes River and tributaries	75,000
North Fork Game Protective Association	Sept. 21	Rock Creek	4,000
North Fork Game Protective Association	Sept. 24	Otter Creek	6,000
North Fork Game Protective Association	Sept. 24	Canyon Creek	2,000
		Total	452,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
El Dorado County Rod and Gun Club	Aug. 15	Middle Fork of American River	26,000
Chas. Edner	Aug. 15	Little South Fork of Cosumnes River	4,000
George Neale	July 13	Middle Fork of Cosumnes River	6,000
George Neale	July 13	Scott Creek	2,000
El Dorado County Rod and Gun Club	Aug. 22	Rock Creek	16,000
El Dorado County Rod and Gun Club	Aug. 22	Middle Fork of Cosumnes River	4,000
El Dorado County Rod and Gun Club	Aug. 29	Park Creek	6,000
North Fork Game Protective Association	Sept. 4	Rock Creek	2,000
F. J. Pomin	Sept. 16	Canyon Creek	8,000
Glen Alpine Springs	Sept. 16	Grass Lake	5,000
Glen Alpine Springs	Sept. 16	Heather Lake	5,000
Glen Alpine Springs	Sept. 16	Susie Lake	5,000
Glen Alpine Springs	Sept. 16	Half Moon Lake	5,000
Hotel Tallac	Sept. 22	Taylor Creek	2,000
Hotel Tallac	Sept. 22	Cascade Creek	2,000
N. L. Salter	Sept. 22	Eagle Lake	4,000
N. L. Salter	Sept. 22	Eagle Creek	4,000
		Total	106,000

Distribution of Rainbow Trout.

El Dorado County Rod and Gun Club	Aug. 15	Middle Fork of American River	58,000
El Dorado County Rod and Gun Club	Aug. 22	Whaler and Gadis Creek	16,000
El Dorado County Rod and Gun Club	Aug. 22	Whaler and One Eye Creek	14,000
El Dorado County Rod and Gun Club	Aug. 22	North and Middle Forks of Cosumnes River	20,000
El Dorado County Rod and Gun Club	Aug. 29	Camp Creek	12,000
El Dorado County Rod and Gun Club	Aug. 29	American River	68,000
North Fork Game Protective Association	Sept. 4	Greenwood Creek	2,000
North Fork Game Protective Association	Sept. 4	Rock Creek	2,000
North Fork Game Protective Association	Sept. 4	Canyon Creek	6,000
F. J. Pomin	Sept. 16	Richardson Lake	8,000
James Bryson	Sept. 16	Headwaters of South Fork of American River	6,000
R. Colwell	Sept. 16	Rubicon River	2,000
R. Colwell	Sept. 16	Rock Bound Lake	6,000
Hotel Tallac	Sept. 22	Angora Lakes	4,000
Hotel Tallac	Sept. 22	Taylor Creek	4,000
Hotel Tallac	Sept. 22	Cascade Creek	2,000
Murphy & Morgan	Sept. 22	Duck Creek	8,000
E. S. Schmidell	Sept. 22	Rubicon River	6,000
		Total	244,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
El Dorado County Rod and Gun Club	Aug. 15	Middle Fork of American River	26,000
F. J. Pomin	Sept. 16	Richardson Lake	4,000
James Bryson	Sept. 16	Headwaters of South Fork of American River	6,000
R. Colwell	Sept. 16	Rock Bound Lake	4,000
C. P. Winchell	Sept. 22	Little Truckee River	1,500
C. P. Winchell	Sept. 22	Echo Lake	1,500
C. P. Winchell	Sept. 22	Audrain Lake	1,500
C. P. Winchell	Sept. 22	American River	3,000
C. P. Winchell	Sept. 22	Pyramid Creek	1,500
Hotel Tallac	Sept. 22	Tallac Creek	4,000
Murphy & Morgan	Sept. 22	Duck Creek	4,000
N. L. Salter	Sept. 22	Eagle Creek	1,000
N. L. Salter	Sept. 22	Eagle Lake	1,000
E. S. Schmidell	Sept. 22	Rabbit Lake	4,000
		Total	63,000

FRESNO COUNTY.

Distribution of Loch Leven Trout.

San Joaquin and Eastern Railroad	Sept. 19	Huntington Lake	100,000

Distribution of Rainbow Trout.

Shaver Lake Fishing Club	Sept. 18	Bacon Creek, tributary to Shaver Lake	20,000
San Joaquin and Eastern Railroad	Sept. 19	Stevenson Creek	6,000
San Joaquin and Eastern Railroad	Sept. 19	Huntington Lake	30,000
San Joaquin and Eastern Railroad	Sept. 19	Huntington Lake and tributaries	40,000
W. H. Thrower	Sept. 19	Balsam Creek	4,000
W. H. Thrower	Sept. 19	Alder Creek	2,000
W. H. Thrower	Sept. 19	Pitman Creek	4,000
		Total	106,000

GLENN COUNTY.

Distribution of Loch Leven Trout.

B. H. Mace	July 21	Brisco Creek	15,000
B. H. Mace	July 21	South Fork of Elk Creek	5,000
B. H. Mace	July 21	Grindstone Creek	17,000
B. H. Mace	July 21	Salt Creek	13,000
		Total	50,000

Distribution of Eastern Brook Trout.

B. H. Mace	July 21	Salt Creek	20,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
B. H. Mace	July 21	Brisco Creek	7,000
B. H. Mace	July 21	South Fork of Elk Creek	4,000
B. H. Mace	July 21	Cold Creek	25,000
B. H. Mace	July 21	Grindstone Creek	12,000
		Total	48,000

INYO COUNTY.

Distribution of Black Spotted Trout.

Mount Whitney Gun and Anglers' Club	July 28	Haiwee Reservoir	15,000

Distribution of Loch Leven Trout.

Dick Eldred	July 28	Bishop Creek, South Fork	6,000
Hall & McAfee	July 28	Big Pine Creek	8,000
Mount Whitney Gun and Anglers' Club	July 28	Lubken Creek	4,000
Mount Whitney Gun and Anglers' Club	July 28	Tuttle Creek	4,000
Mount Whitney Gun and Anglers' Club	July 28	Lone Pine Creek	2,000
D. M. Nicoll	July 28	Olancha Creek	4,000
D. M. Nicoll	July 28	Shepherds Creek	4,000
D. M. Nicoll	July 28	Walker Creek	1,000
D. M. Nicoll	July 28	Olancha Creek	3,000
		Total	36,000

Distribution of Eastern Brook Trout.

Dick Eldred	July 28	Bishop Creek, North Fork	12,000
Hall & McAfee	July 28	Big Pine Creek	8,000
Mount Whitney Gun and Anglers' Club	July 28	Lubken Creek	4,000
Mount Whitney Gun and Anglers' Club	July 28	Tuttle Creek	4,000
Mount Whitney Gun and Anglers' Club	July 28	Lone Pine Creek	6,000
Mount Whitney Gun and Anglers' Club	July 28	Mirror Lake	6,000
Mount Whitney Gun and Anglers' Club	July 28	Consultation Lake	6,000
Mount Whitney Gun and Anglers' Club	July 28	Headwaters of Lone Pine Creek	8,000
Mount Whitney Gun and Anglers' Club	July 28	Bair Creek	6,000
D. M. Nicoll	July 28	Olancha Creek	4,000
D. M. Nicoll	July 28	Shepherds Creek	4,000
Carl Walters	July 28	Thieban Creek	4,000
Carl Walters	July 28	Lake at head of South Fork of Oak Creek	4,000
D. M. Nicoll	July 28	Walker Creek	1,000
D. M. Nicoll	July 28	Olancha Creek	3,000
Clyde Allen	July 28	Goodale Creek	2,000
Clyde Allen	July 28	Taboose Creek	2,000
		Total	84,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Dick Eldred	July 28	Bishop Creek at Andrews Camp	5,000
Hall & McAfee	July 28	Tinemaha Creek	5,000
Hall & McAfee	July 28	Big Pine Creek	5,000
Carl Walters	July 28	Syms Creek	5,000
Carl Walters	July 28	Charles Creek	2,500
Carl Walters	July 28	Little Onion Valley, South Fork of Oak Creek	2,500
Clyde Allen	July 28	Goodale Creek	2,000
Clyde Allen	July 28	Taboose Creek	2,500
		Total	30,000

KERN COUNTY.

Distribution of Perch.

Arthur S. Crites	Oct. 12	Kern River	800

Distribution of Bass.

Arthur S. Crites	Oct. 12	Kern River	218

Distribution of Steelhead Trout.

Kern River Trout Club	Sept. 8	Cedar Creek	12,000
R. R. Martin	Sept. 8	Lumro Creek	4,500
F. G. Munzer	Sept. 8	Kern River	40,000
G. G. McKay	Sept. 8	Basin Creek	8,000
Arthur S. Crites	Oct. 5	Indian Creek	6,000
		Total	70,500

Distribution of Loch Leven Trout.

Kern River Trout Club	Sept. 8	Cedar Creek	12,000
Ed Tibbett	Sept. 8	McFarland Creek	6,000
		Total	18,000

Distribution of Rainbow Trout.

Kern River Trout Club	Sept. 8	Cedar Creek	12,000
R. R. Martin	Sept. 8	Lumro Creek	4,500
Ed Tibbett	Sept. 8	McFarland Creek	6,000
F. G. Munzer	Sept. 8	Kern River	10,000
Arp & Kaye	Sept. 9	Oak Creek	4,000
W. W. Laidley	Oct. 5	Cedar Creek	2,000
Al Cummings	Oct. 13	Cummings Reservoir	8,000
		Total	46,500

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

LAKE COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Mrs. Geo. Farley	Sept. 27	Alder Creek	5,000
Mrs. Geo. Farley	Sept. 27	Kelsey Creek	5,000
Mrs. Geo. Fields	Sept. 27	Kelsey Creek	5,000
Mrs. Geo. Fields	Sept. 27	Jones Creek	5,000
		Total	20,000

Distribution of Loch Leven Trout.

Allen Springs Co.	Sept. 27	Allen Creek	8,000

Distribution of Eastern Brook Trout.

Mrs. Geo. Farley	Sept. 27	Alder Creek	3,000
Mrs. Geo. Farley	Sept. 27	Kelsey Creek	3,000
Mrs. Geo. Fields	Sept. 27	Houten Creek	6,000
		Total	12,000

Distribution of Rainbow Trout.

Allen Springs Co.	Sept. 27	Allen Creek	8,000

LASSEN COUNTY.

Distribution of Blue Catfish.

F. A. Marsh	July 21	Tule Lake, 5 miles north of Plumas Junction	48

Distribution of Steelhead Trout.

F. D. Hall	Sept. 24	Willow Creek	8,000
Red River Lumber Co.	Sept. 24	Feather River	8,000
Frank P. Cady	Sept. 24	Susan River	10,000
Fish and Game Com.	Oct. 15	Juniper Lake	25,000
		Total	51,000

Distribution of Loch Leven Trout.

W. R. Horne	July 21	Smoke Creek	2,000
Red River Lumber Co.	Sept. 24	Clear Creek	10,000
Frank P. Cady	Sept. 24	Eagle Lake	16,000
Frank P. Cady	Sept. 24	Susan River	4,000
		Total	32,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Homer C. Jack	July 21	Willow Creek	4,000
T. J. Dunlap	July 21	Ash Creek	6,000
		Total	10,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
W. R. Horne	July 21	Smoke Creek	6,000
Homer C. Jack	July 21	Willow Creek	4,000
T. J. Dunlap	July 21	Ash Creek	2,000
F. D. Hall	Sept. 24	Willow Creek	8,000
Red River Lumber Co.	Sept. 24	Robbers Creek	10,000
Red River Lumber Co.	Sept. 24	Feather River	2,000
Frank P. Cady	Sept. 24	Susan River	10,000
		Total	42,000

LOS ANGELES COUNTY.

Distribution of Bass.

Applicant	Date	Water stocked	Number
Mrs. Frankes	Oct. 6	Elizabeth Lake	30

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Geo. E. Little	Oct. 13	Rio Hondo	6,000
H. I. Pritchard	Oct. 13	Topango Canyon	8,000
A. Adams, Jr.	Oct. 13	Big Tujunga	4,000
H. W. O'Melveny	Oct. 22	San Gabriel River	60,000
		Total	78,000

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
H. W. O'Melveny	Oct. 6	San Gabriel River	4,000
H. W. O'Melveny	Oct. 6	San Gabriel River, east fork	4,000
H. W. O'Melveny	Oct. 6	San Gabriel River, north fork	6,000
H. W. O'Melveny	Oct. 6	San Gabriel River, west fork	4,000
H. W. O'Melveny	Oct. 6	San Gabriel River, Bear Canyon	4,000
H. W. O'Melveny	Oct. 6	San Gabriel River, Cattle Canyon	4,000
H. W. O'Melveny	Oct. 6	San Gabriel River, Soldier Creek	4,000
		Total	30,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
G. L. Baker	Oct. 7	Santa Anita River	2,000
Hurbert T. Mills	Oct. 6	San Dimas Canyon	4,000
H. W. O'Melveny	Oct. 6	San Gabriel River	16,000
H. W. O'Melveny	Oct. 6	San Gabriel River, east fork	6,000
H. W. O'Melveny	Oct. 6	San Gabriel River, north fork	6,000
H. W. O'Melveny	Oct. 6	San Gabriel River, west fork	6,000
H. W. O'Melveny	Oct. 6	San Gabriel River, Bear Canyon	6,000
H. W. O'Melveny	Oct. 6	San Gabriel River, Cattle Canyon	6,000
H. W. O'Melveny	Oct. 6	San Gabriel River, Soldier Creek	6,000
T. J. Opid	Oct. 6	Rocky Gulch of west fork of San Gabriel River	2,000
T. J. Opid	Oct. 6	West Fork of San Gabriel River	2,000
E. De Vor	Oct. 6	West Fork of San Gabriel River	6,000
A. Adams, Jr.	Oct. 13	Big Tujunga	16,000
		Total	84,000

MADERA COUNTY.

Distribution of Rainbow Trout.

A. D. Ferguson	Sept. 3	North Fork San Joaquin River	26,000

MARIN COUNTY.

Distribution of Steelhead Trout.

California Anglers' Assn.	Aug. 21	Lake Lagunitas	90,000
California Anglers' Assn.	Aug. 21	San Geronimo Creek	35,000
California Anglers' Assn.	Aug. 21	Paper Mill Creek	75,000
California Anglers' Assn.	Aug. 21	Olema Creek	50,000
W. G. Domerque	Sept. 27	Steep Ravine	25,000
W. G. Domerque	Sept. 27	Muir Woods	25,000
		Total	300,000

MARIPOSA COUNTY.

Distribution of Rainbow Trout.

Edwin T. Huffman	Sept. 3	Miami Creek	10,000
Yosemite Valley R. R. Co.	Sept. 30	Merced River, from Busburg to El Portal	56,000
C. B. Hollingsworth	Sept. 30	Cascade Creek	4,000
		Total	70,000

Distribution of Loch Leven Trout.

Edwin T. Huffman	Sept. 3	Merced River, south fork	10,000
Yosemite Valley R. R. Co.	Sept. 30	Merced River, from Busburg to El Portal	53,000
C. B. Hollingsworth	Sept. 30	Cascade Creek	4,000
		Total	70,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
Yosemite Valley R. R. Co.	Sept. 30	Merced River, from Busburg to El Portal	60,000

Distribution of Steelhead Trout.

Yosemite Valley R. R. Co.	Sept. 30	Merced River, from Busburg to El Portal	40,000

MENDOCINO COUNTY.

Distribution of Steelhead Trout.

California Western R. R. and Navigation Co.	June 4	Noyo River	320,000
California Western R. R. and Navigation Co.	June 4	Pudding Creek	44,000
P. H. Anderson	June 4	Albion River	20,000
California Western R. R. and Navigation Co.	Aug. 7	Noyo River	184,000
		Total	568,000

Distribution of Eastern Brook Trout.

California Western R. R. and Navigation Co.	June 4	Hare Creek	12,000

MODOC COUNTY.

Distribution of Blue Catfish.

J. T. Spaulding	July 21	Hackmore Reservoir	46

Distribution of Loch Leven Trout.

Irvin Kistler	July 21	Barber Creek	2,000
Irvin Kistler	July 21	Emerson Creek	2,000
T. S. Kemple	July 21	Shields Creek	2,000
Stanley A. McIntosh	July 23	Pine Creek	6,000
		Total	12,000

Distribution of Eastern Brook Trout.

Grover Wimer	July 21	Mill Creek	6,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Grover Wimer	July 21	Mill Creek	6,000
Irvin Kistler	July 21	Eagle Creek	2,000
Irvin Kistler	July 21	Rader Creek	2,000
T. S. Kemple	July 21	Shields Creek	4,000
Stanley A. McIntosh	July 23	Pine Creek	6,000
		Total	20,000

MONO COUNTY.

Distribution of Loch Leven Trout.

W. M. Maule	Aug. 17	West Walker River	4,000
W. M. Maule	Aug. 17	East Fork West Walker River	2,000
W. M. Maule	Aug. 17	Little Twin L's West Walker Watershed	4,000
W. M. Maule	Aug. 17	Horseshoe L's east of Leavitt Meadow	4,000
W. M. Maule	Aug. 17	Lake at head of Silver Creek	2,000
W. M. Maule	Aug. 17	Junction Reservoir	2,000
W. M. Maule	Aug. 17	Molybdenite Lake	2,000
		Total	20,000

Distribution of Eastern Brook Trout.

W. M. Maule	Aug. 17	Headwaters of West Walker River	4,000
W. M. Maule	Aug. 17	Lost Canyon and Mill Creek	4,000
W. M. Maule	Aug. 17	Molybdenite Creek	2,000
W. M. Maule	Aug. 17	Sawyer Creek	2,000
W. M. Maule	Aug. 17	Willow Flats, Molybdenite Watershed	2,000
		Total	14,000

MONTEREY COUNTY.

Distribution of Steelhead Trout.

W. M. Casey	Aug. 4	Nacimiento River	42,500
W. M. Casey	Aug. 4	Arroyo Seco	20,000
W. M. Casey	Aug. 4	San Antonio	62,500
		Total	125,000

Distribution of Loch Leven Trout.

S. E. Whitcher	July 8	Los Vaquero	9,000
S. E. Whitcher	July 8	Horse Canyon	3,500
Jno. L. D. Roberts	July 7	Carmel River	22,500
Jno. L. D. Roberts	Aug. 5	Carmel River at Miller Canyon	22,500
		Total	57,500

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Paul Tabbott	July 8	Arroyo Seco	15,000
S. E. Whitcher	July 8	Horse Canyon	6,000
S. E. Whitcher	July 8	Piney Creek	12,000
S. E. Whitcher	July 7	Arroyo Seco	6,500
Chas. H. Culp	July 7	White Rock Creek	9,000
W. M. Casey	Aug. 4	Nacimiento River	7,500
W. M. Casey	Aug. 4	Arroyo Seco	5,000
W. M. Casey	Aug. 4	San Antonio	12,500
		Total	73,500

NAPA COUNTY.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Theo. A. Bell	Sept. 27	Bells Creek	21,000

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Clifford N. Clark	May 30	Trout Creek	21,000
Clifford N. Clark	May 30	Copelle Creek	21,000
Geo. H. Warford	May 30	Lake Madigan	75,000
Geo. H. Warford	May 30	Lake Frey	45,000
C. H. Drake	May 30	Ritchie Creek	36,000
Henry Feige	May 30	Feige Creek	12,000
F. W. Mielem	May 30	Upper Conn Creek	24,000
J. P. Orr	May 30	Soscol Creek	18,000
William West	May 30	Napa Creek	60,000
Bismark Bruck	Sept. 27	Lyman Creek	2,000
Bismark Bruck	Sept. 27	Conn Creek	2,000
Warren C. Steves	Sept. 27	Conn Creek	4,000
Warren C. Steves	Sept. 27	Chiles Creek	6,000
Warren C. Steves	Sept. 27	York Creek	6,000
Warren C. Steves	Sept. 27	Sage Creek	4,000
		Total	336,000

NEVADA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
W. B. Tubbs	Sept. 15	Webber Lake	8,000
Truckee Chamber of Com.	Oct. 2	Donner Lake	200,000
		Total	208,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
J. F. Swears	July 1	Yuba River	6,000
J. F. Swears	July 1	Lake Van Norden	6,000
Mrs. Geo. W. Kenny	July 1	Lake Independence	9,000
E. F. Steward	July 1	Lake Flora	6,000
E. F. Steward	July 1	Willow Lake	6,000
S. F. Fly Casting Club	July 1	Union Mill's Pond	39,000
Pacific Gas and Electric Co.	Sept. 4	Lake Spaulding tributaries, Fordyce Creek	15,000
Pacific Gas and Electric Co.	Sept. 4	South Yuba River	15,000
Pacific Gas and Electric Co.	Sept. 4	Bloody Run	16,000
		Total	118,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Stewart McKay	July 1	Rionarson Creek	12,000
J. F. Swears	July 1	Yuba River	5,000
J. F. Swears	July 1	Lake Van Norton	4,000
Mrs. Geo. W. Kenny	July 1	Lake Independence	9,000
W. B. Tubbs	Sept. 15	Webber Lake	2,000
W. B. Tubbs	Sept. 15	Lake of the Woods	3,000
The Boca Mill Co.	Sept. 15	Juniper Creek	10,000
Grass Valley Sportsman	Sept. 23	Green Horn	6,000
Grass Valley Sportsman	Sept. 23	South Yuba River	14,000
Grass Valley Sportsman	Sept. 23	Rattle Snake	2,000
Grass Valley Sportsman	Sept. 23	Wolf Creek	4,000
Grass Valley Sportsman	Sept. 23	Bear River Canal	4,000
		Total	75,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Mrs. Geo. W. Kenny	July 1	Lake Independence	12,000
S. F. Fly Casting Club	Aug. 15	Union Mill's Pond	60,000
Ever Bros.	Aug. 15	Ever Creek	16,000
Sierra Nevada W. & L. Co.	Aug. 15	Prosser Creek	21,000
Sierra Nevada W. & L. Co.	Aug. 15	Sage Hen Creek	9,000
M. L. West	Aug. 15	South Yuba River	8,000
Pacific Gas and Electric Co.	Sept. 4	Lake Spaulding tributaries, Fordyce Creek	15,000
Pacific Gas and Electric Co.	Sept. 4	South Yuba River	15,000
Pacific Gas and Electric Co.	Sept. 4	Bloody Run	12,000
The Boca Mill Co.	Sept. 4	Little Truckee	30,000
Nevada City Sportsman Club	Sept. 21	Deer Creek	36,000
Nevada City Sportsman Club	Sept. 21	Rock Creek	14,000
Grass Valley Sportsman Club	Sept. 23	Bouman Lake	20,000
Grass Valley Sportsman Club	Sept. 23	Fancherie Lake	8,000
Grass Valley Sportsman Club	Sept. 23	Saw Mill Lake	8,000
Grass Valley Sportsman Club	Sept. 23	Bear River	20,000
Grass Valley Sportsman Club	Sept. 23	Green Horn	8,000
Grass Valley Sportsman Club	Sept. 23	South Yuba River	14,000
Grass Valley Sportsman Club	Sept. 23	Rattle Snake	2,000
		Total	328,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

ORANGE COUNTY.

Distribution of Catfish.

Applicant	Date	Water stocked	Number
A. J. McFadden	Oct. 13	Laguna Lake	27

Distribution of Sunfish.

H. M. Tracy	Oct. 13	School Pond and aquarium	15

Distribution of Steelhead Trout.

W. F. Adkinson	Oct. 13	Trabuso	6,000
A. F. Forester	Oct. 13	San Juan Creek	6,000
A. F. Forester	Oct. 13	Trabuso	6,000
		Total	18,000

Distribution of Rainbow Trout.

W. F. Adkinson	Oct. 13	Trabuso	4,000

PLACER COUNTY.

Distribution of Rainbow Trout.

Frank L. Harmon	July 1	Canyon Creek	15,000
A. G. McFarland	July 1	South Yuba River	6,000
Lake Tahoe R. & T. Co.	Aug. 16	Ward Creek	12,000
Miss Katherine Chandler	Aug. 16	Bear Creek	6,000
C. Frederick Kohl	Aug. 16	Blackwood Creek	4,000
H. M. Freeman	Aug. 16	South Yuba River	14,000
Placer F. and H. P. Assn.	Sept. 4	Clipper Ravine	4,000
Placer F. and H. P. Assn.	Sept. 4	Wessley Creek	2,000
North Fork G. Pro. Assn.	Sept. 4	Dutch Ravine	2,000
North Fork G. Pro. Assn.	Sept. 4	Secret Ravine	1,000
North Fork G. Pro. Assn.	Sept. 4	Cook and Boggs Ravine	1,000
North Fork G. Pro. Assn.	Sept. 4	American River, north of North Fork	10,000
North Fork Assn.	Sept. 15	American River, North Fork	15,000
Lawrence & Comstock	Sept. 16	Brockway Creek	6,000
William Taft	Sept. 16	Rock Creek	4,000
Lake Tahoe R. & T. Co.	Sept. 16	Burton Creek	12,000
Fish and Game Com.	Sept. 21	Truckee River	10,000
E. A. Garrison	Oct. 24	Volcano Creek	8,000
E. A. Garrison	Oct. 24	Shirttail Creek	10,000
E. A. Garrison	Oct. 24	El Dorado Creek	8,000
E. A. Garrison	Oct. 24	Big Secret Creek	8,000
E. A. Garrison	Oct. 24	Screw Augur Creek	8,000
E. A. Garrison	Oct. 24	Devils Canyon	8,000
		Total	174,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
W. A. Buckman	July 1	Cold Stream	15,000
H. M. Freeman	July 1	South Yuba River	12,000
J. B. Knapp	July 1	Blue Canyon Creek	6,000
J. B. Knapp	July 1	North Fork of American River	6,000
E. F. Stewart	July 1	Castle Creek	9,000
Lake Tahoe R. & T. Co.	Aug. 16	Ward Creek	12,000
F. H. Scott	Aug. 16	Squaw Creek	20,000
Miss Katherine Chandler	Aug. 16	Five Lakes	4,000
W. J. McCleary	Aug. 15	Brushy Canyon	9,000
W. J. McCleary	Aug. 15	Shirttail Canyon	9,000
W. J. McCleary	Aug. 15	North Fork of American River	9,000
C. Frederick Kohl	Aug. 16	Blackwood Creek	8,000
E. L. Mooney	Sept. 4	South Yuba River	2,000
Pacific Gas and Elec. Co.	Sept. 4	Lake Valley	14,000
North Fork Assn.	Sept. 15	American River, North Fork	4,000
Tahoe Vista I. Co.	Sept. 16	Griff Creek	4,000
Lawrence & Comstock	Sept. 16	Brockway Creek	4,000
Lake Tahoe R. & T. Co.	Sept. 16	Burton Creek	8,000
		Total	155,000

Distribution of Loch Leven Trout.

H. M. Freeman	July 1	Loch Leven Lake	15,000
A. G. McFarland	July 1	South Yuba River	6,000
Lake Tahoe R. & T. Co.	Aug. 16	Ward Creek	12,000
Miss Katherine Chandler	Aug. 16	Five Lakes	6,000
Placer F. and H. Pr. Assn.	Sept. 4	Clipper Ravine	2,000
Placer F. and H. Pr. Assn.	Sept. 4	Wessley Creek	2,000
Placer F. and H. Pr. Assn.	Sept. 2	Codfish Creek	2,000
E. L. Mooney	Sept. 2	South Yuba River	4,000
North Fork G. Pro. Assn.	Sept. 2	Dutch Ravine	2,000
North Fork G. Pro. Assn.	Sept. 2	Secret Ravine	1,000
North Fork G. Pro. Assn.	Sept. 2	Cook and Boggs Ravine	1,000
North Fork G. Pro. Assn.	Sept. 2	American River	10,000
Pacific Gas and Elec. Co.	Sept. 2	Lake Valley	14,000
North Fork Assn.	Sept. 15	American River, North Fork	8,000
Tahoe Vista I. Co.	Sept. 16	Griff Creek	4,000
Lawrence & Comstock	Sept. 16	Brockway Creek	4,000
Fish and Game Com.	Sept. 21	Truckee River	6,000
		Total	99,000

Distribution of Steelhead Trout.

H. A. Snelling	Oct. 24	Antelope Ravine	8,000
F. R. Payne and R. Fowler	Oct. 24	Canyon Creek	8,000
		Total	16,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

PLUMAS COUNTY.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
Grizzly Ice Co.	June 13	Grizzly Ice Lake	12,000
Portola Chamber of Com.	June 13	Grizzly Creek	18,000
C. N. Johnson and J. B. Sutton	June 13	Smith Creek	9,000
C. N. Johnson and J. B. Sutton	June 13	Gray Eagle Creek	9,000
Charles Belden	June 13	Chipps Creek	6,000
Charles Belden	June 13	Indian Creek	3,000
N. P. Nelson	June 13	Yellow Creek	6,000
A. L. Andrews	June 13	Feather River	42,000
Leo M. Nevis	June 13	Feather River	12,000
I. C. Zant	June 13	Feather River	39,000
Roger T. Remick	June 15	Bonta Creek	20,000
Robert Canonica	July 15	Last Chance Creek	2,500
Portola Chamber of Com.	July 21	Grizzly Creek	5,000
Mrs. M. P. Rogers	July 21	Milk Ranch Creek	12,500
		Total	196,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Grizzly Ice Co.	June 13	Grizzly Creek	9,000
Portola Chamber of Com.	June 13	Grizzly Creek	18,000
Johnsville Boat Club	June 13	Eureka Lake	12,000
Johnsville Boat Club	June 13	Jamison Lake	12,000
Charles Belden	June 13	Indian Creek	3,000
Charles Belden	June 13	Yellow Creek	6,000
N. P. Nelson	June 13	Indian Creek	3,000
N. P. Nelson	June 13	Chipps Creek	3,000
Leo M. Nevis	June 13	Chambers Creek	6,000
H. G. Porter	July 15	Mill Creek	14,400
H. G. Porter	July 15	Little Spanish Creek	6,600
W. G. Hottman	July 15	Clear Creek	4,000
Portola Chamber of Com.	July 21	Grizzly Creek	5,000
W. H. Day	July 21	Jackass Creek	5,000
W. H. Day	July 21	Chambers Creek	5,000
B. D. Maynard	July 21	Rock Creek	15,000
		Total	127,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	
Johnson & Sutton	July 14	Gray Eagle	6,000
A. T. Walker	July 14	East Branch Chipps River	4,000
A. T. Walker	July 14	Yellow Creek	4,000
A. T. Walker	July 14	Chambers Creek	4,000
Geo. A. Sanborn	July 15	Feather River, south fork	12,000
Roger T. Remick	July 15	Bonta Creek	12,000
Portola Chamber of Com.	July 15	Grizzly Creek	18,000
Leo M. Nevis	July 15	Jackass Creek	10,500
Leo M. Nevis	July 15	Feather River	1,500
N. P. Nelson	July 15	Chipps Creek	3,000
N. P. Nelson	July 15	Yellow Creek	3,000
W. G. Hottman	July 15	Mill Creek	9,000
Chas. Belden	July 15	Chipps Creek	6,000
Chas. Belden	July 15	Yellow Creek	3,000
Dr. J. A. Barr	July 15	Lost Creek	48,000
Oro Electric Corp.	July 15	Yellow Creek	15,000
Robert Canonica	July 15	Last Chance Creek	9,000
I. O. Zent	July 21	Feather River	30,000
Portola Chamber of Com.	July 21	Grizzly Creek	15,000
A. J. Stanley	July 21	Chambers Creek	9,000
A. J. Stanley	July 21	Milk Ranch Creek	9,000
Johnson & Sutton	July 21	Smith Creek	6,000
W. H. Day	July 21	Feather River	3,000
A. L. Andrews	July 21	Feather River	24,000
A. L. Andrews	July 21	Jackass Creek	6,000
		Total	270,000

Distribution of Steelhead Trout.

W. G. Hottman	July 21	Kellogg Creek	4,000
W. G. Hottman	July 21	Mill Creek	8,000
		Total	12,000

RIVERSIDE COUNTY.

Distribution of Loch Leven Trout.

H. I. Ruess	Oct. 18	Dark Canyon	6,000
H. I. Ruess	Oct. 18	Fuller Creek	2,000
		Total	8,000

Distribution of Rainbow Trout.

F. S. Johnson	Oct. 6	Coldwater Creek	4,000
H. I. Ruess	Oct. 18	Dark Canyon	2,000
H. I. Ruess	Oct. 18	Fuller Creek	2,000
		Total	8,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SACRAMENTO COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
R. Warren	Aug. 21	Upper Mokelumne River	7,500
Geo. Neale	Sept. 8	South Side Park	6,000
		Total	13,500

SAN BENITO COUNTY.

Distribution of Steelhead Trout.

Fred W. Boyns	July 8	Los Viboras Creek	18,000

Distribution of Eastern Brook Trout.

E. A. Pearce	July 7	San Juan Canyon Creek	5,000

Distribution of Rainbow Trout.

E. A. Pearce	July 7	San Juan Canyon Creek	12,000

SAN BERNARDINO COUNTY.

Distribution of Black Bass.

S. Guasti	Oct. 13	Guasti Reservoir	45

Distribution of Loch Leven Trout.

W. C. Malone	Oct. 6	Devil Canyon	4,000
W. C. Malone	Oct. 6	Forest Home Stream	4,000
F. Culver	Oct. 6	Fish Creek	6,000
L. M. King	Oct. 6	Mountain Home Stream, east fork	2,000
L. M. King	Oct. 6	Forscee Creek	2,000
L. M. King	Oct. 6	Upper Santa Ana	4,000
		Total	22,000

Distribution of Eastern Brook Trout.

F. Culver	Oct. 6	Falls Creek, north fork	2,000
F. Culver	Oct. 6	Falls Creek, east fork	2,000
F. Culver	Oct. 6	South tributary Mill Creek	4,000
		Total	8,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
W. C. Malone	Oct. 6	Lytle Creek	16,000
W. C. Malone	Oct. 6	Waterman Canyon	4,000
F. Culver	Oct. 6	Mill Creek, upper	4,000
F. Culver	Oct. 6	Alder Creek	2,000
Mark Krysto	Oct. 6	Cucamonga Canyon	4,000
L. M. King	Oct. 6	Barton Creek	4,000
L. M. King	Oct. 6	South Fork	2,000
L. M. King	Oct. 6	Upper Santa Ana	6,000
		Total	42,000

SAN DIEGO COUNTY.

Distribution of Rainbow Trout.

Webb Toms	Oct. 18	Pine Creek	4,000
Webb Toms	Oct. 18	Boulder Creek	2,000
Webb Toms	Oct. 18	Cuyamaca Lake	2,000
S. C. Dickson	Oct. 18	Pauma Creek	10,000
S. C. Dickson	Oct. 18	Lion Creek	2,000
Ed Fletcher	Oct. 18	Cauda Verde Creek	2,000
Ed Fletcher	Oct. 18	Mataqual Creek	2,000
Ed Fletcher	Oct. 18	Dehr Creek	2,000
Ed Fletcher	Oct. 18	Cedar Creek	2,000
DeWitt C. Mitchell	Oct. 18	Cedar Creek	8,000
		Total	36,000

Distribution of Eastern Brook Trout.

S. C. Dickson	Oct. 18	Pauma Creek	2,000
S. C. Dickson	Oct. 18	Lion Creek	2,000
Ed Fletcher	Oct. 18	Cauda Verde Creek	2,000
Ed Fletcher	Oct. 18	Mataqual Creek	2,000
		Total	8,000

Distribution of Loch Leven Trout.

S. C. Dickson	Oct. 18	Pauma Creek	4,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SAN LUIS OBISPO COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Dr. C. S. Noble	June 26	Lopez Creek	20,000
Dr. C. S. Noble	June 26	Arroyo Grande Creek	30,000
Dr. C. S. Noble	June 26	Tar Spring Creek	10,000
San Luis G. and R. Club	June 26	See Canyon Creek	15,000
San Luis G. and R. Club	June 26	Coon Creek	12,000
San Luis G. and R. Club	June 26	Islay Creek	15,000
San Luis G. and R. Club	June 26	Copper Mine Creek	3,000
San Luis G. and R. Club	June 26	San Luis Creek	30,000
San Luis G. and R. Club	June 26	Corral de Pedro	13,000
San Luis G. and R. Club	June 26	Steiner Creek	12,000
San Luis G. and R. Club	June 26	Upper Choro	12,000
San Luis G. and R. Club	June 26	Lower Choro	12,000
San Luis G. and R. Club	June 26	Morro	12,000
San Luis G. and R. Club	June 26	Torro	12,000
San Luis G. and R. Club	June 26	Old Creek	6,000
San Luis G. and R. Club	June 26	Clark Valley Creek	6,000
Santa Maria R. and G. Club	June 26	Twin Lake	10,000
Santa Maria R. and G. Club	June 26	Celery Lake	20,000
Santa Maria R. and G. Club	June 26	Pipe Line Lake	10,000
H. J. Abels	July 8	Alamo	6,000
		Total	266,000

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
Colony Holding Corp.	June 26	Santa Margarita	9,000
Colony Holding Corp.	June 26	Graves Creek	3,000
Santa Maria R. and G. Club	June 26	Mud Lake	8,000
Santa Maria R. and G. Club	June 26	White Lake	7,000
		Total	27,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Colony Holding Corp.	June 26	Atascadero Creek	9,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
P. H. Murphy	June 26	Atascadero Creek	7,500
P. H. Murphy	June 26	San Simeon Creek	10,000
P. H. Murphy	June 26	Berros Creek	3,500
Dr. C. S. Noble	June 26	Lopez Creek	3,000
Dr. C. S. Noble	June 26	Arroyo Grande Creek	3,000
Dr. C. S. Noble	June 26	Tar Spring Creek	3,000
San Luis G. and R. Club	June 26	Islay Creek	3,000
San Luis G. and R. Club	June 26	Copper Mine Creek	3,000
San Luis G. and R. Club	June 26	San Luis Creek	15,000
San Luis G. and R. Club	June 26	Corral de Pedro	3,000
San Luis G. and R. Club	June 26	Steiner Creek	3,000
San Luis G. and R. Club	June 26	Upper Choro	3,000
San Luis G. and R. Club	June 26	Lower Choro	3,000
San Luis G. and R. Club	June 26	Morro	3,000
San Luis G. and R. Club	June 26	Torro	3,000
		Total	69,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SAN MATEO COUNTY.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Ocean Shore R. R. Co.	June 20	Purisima Creek	60,000
Ocean Shore R. R. Co.	June 20	Corte Madera Creek	20,000
		Total	80,000

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Ocean Shore R. R. Co.	June 20	Tobin Creek	32,000
Ocean Shore R. R. Co.	June 20	Higgin Creek	44,000
Ocean Shore R. R. Co.	June 20	Lobitos Creek	60,000
Ocean Shore R. R. Co.	June 20	Tunitas Creek	40,000
Ocean Shore R. R. Co.	June 20	Harrington Creek	60,000
Ocean Shore R. R. Co.	June 20	San Gregoria Creek	84,000
Jos. B. Fleming	June 20	San Pedro Creek	40,000
Butana L. and Dev. Co.	Sept. 8	Butano Creek	10,000
McCormick & Son	Sept. 8	Butano Creek	10,000
Herbert E. Law	Oct. 6	Corte Madera Creek	20,000
		Total	400,000

SANTA BARBARA COUNTY.

Distribution of Quinnat Salmon.

Applicant	Date	Water stocked	Number
H. J. Abels	July 8	Santa Ynez River	25,000

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
H. J. Abels	July 8	Salsipuedes Creek	6,000
H. J. Abels	July 8	Miguelito	6,000
H. J. Abels	July 8	Santa Ynez River	30,000
H. J. Abels	July 8	Tepusquet	6,000
H. J. Abels	July 8	Guadalupe Creek	6,000
H. J. Abels	July 8	Dos Pueblos	21,000
H. J. Abels	July 8	Santa Ynez River	60,000
H. S. Deaderick	Oct. 7	Arroyo Padaro	3,000
H. S. Deaderick	Oct. 7	Rincon Creek	3,000
H. S. Deaderick	Oct. 7	Carpinteria Creek	3,000
H. S. Deaderick	Oct. 7	Gobenerdor Creek	3,000
		Total	147,000

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
H. J. Abels	July 8	Sisquoc	7,500
H. J. Abels	July 8	Manzana	2,500
H. J. Abels	July 8	Tepusquet	2,500
		Total	12,500

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
H. J. Abels	July 8	Sisquoc	10,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SANTA CLARA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Earle Downing	June 9	Calaveras Creek	10,000
Earle Downing	June 9	Bear Creek	8,000
Earle Downing	June 9	Valpe Creek	8,000
C. H. Squire	Aug. 8	Los Gatos	15,000
		Total	41,000

Distribution of Rainbow Trout.

I. L. Koppel	July 7	Smiths Creek	30,000

SHASTA COUNTY.

Distribution of Rainbow Trout.

C. L. Watson	July 8	Clear Creek	10,000
C. L. Watson	July 8	Five Mile Gulch	2,500
C. L. Watson	July 8	Mill Creek	2,500
Hazel Gold Mining Co.	July 8	Crystal Creek	7,500
Hazel Gold Mining Co.	July 8	Kliens Gulch	2,500
W. H. Logan	July 8	Eagle Creek	5,000
W. H. Logan	July 8	East Fork of Cottonwood	7,500
W. H. Logan	July 8	South Fork of Cottonwood	5,000
Alex Hansen	Aug. 22	Cedar Creek	2,500
Alex Hansen	Aug. 22	Cow Creek	2,500
Alex Hansen	Aug. 22	Willow Creek	2,500
Alex Hansen	Aug. 22	Montgomery Creek	2,500
H. O. Wicks	Aug. 25	Sacramento River	8,000
Harmon Bell	Aug. 26	Sacramento River	10,000
Dunsmuir Promotion Club	Aug. 29	Little Castle Creek	16,000
Dunsmuir Promotion Club	Aug. 29	Soda Creek	39,000
Dunsmuir Promotion Club	Aug. 29	Little Soda Creek	5,000
Seymour S. Bass	Aug. 29	McCloud River	40,000
Sacramento Valley Eastern R. R.	Aug. 29	Dedalles Creek	10,000
J. L. Barham	Sept. 8	Rock Creek	4,000
		Total	184,500

Distribution of Bass.

E. W. Ehmann	Nov. 1	Harbison Reservoir	40

Distribution of Steelhead Trout.

H. O. Wicks	Aug. 25	Sacramento River	8,000
Harmon Bell	Aug. 26	Sacramento River	12,000
J. L. Barham	Sept. 8	Rock Creek	8,000
Dunsmuir Promotion Club	Oct. 17	Little Castle Creek	100,000
Dunsmuir Promotion Club	Oct. 17	Sacramento River	150,000
		Total	278,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
C. L. Watson	July 8	Clear Creek	10,000
C. L. Watson	July 8	Five Mile Gulch	2,500
C. L. Watson	July 8	Mill Creek	2,500
Hazel Gold Mining Co.	July 8	Crystal Creek	2,500
Hazel Gold Mining Co.	July 8	Kliens Gulch	2,500
Dunsmuir Promotion Club	Aug. 29	Little Castle Creek	16,000
Dunsmuir Promotion Club	Aug. 29	Soda Creek	39,000
Dunsmuir Promotion Club	Aug. 29	Little Soda Creek	5,000
Sacramento Valley Eastern R. R.	Aug. 29	Dedalles Creek	10,000
		Total	90,000

SIERRA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Webber Lake Club	Sept. 21	Webber Lake	16,000
Webber Lake Club	Sept. 21	Lake of the Woods	6,000
		Total	22,000

Distribution of Loch Leven Trout.

Applicant	Date	Water stocked	Number
R. W. Thorne	July 15	Loyalton Creek	5,000
R. W. Thorne	July 15	Turner Creek	5,000
R. W. Thorne	July 15	Bodinach Creek	5,000
G. F. Edwards	July 21	Gold Lake	10,000
A. S. Nichols	Sept. 15	Cool Creek	6,000
A. S. Nichols	Sept. 15	Morgan Creek	2,000
A. S. Nichols	Sept. 15	Miller Creek	2,000
		Total	35,000

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
W. B. Tubbs	July 1	Inlet to Webber Lake	18,000
G. F. Edwards	July 21	Gold Lake	5,000
		Total	23,000

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
W. B. Tubbs	July 1	Inlet to Webber Lake	18,000
R. W. Thorne	July 15	Loyalton Creek	7,000
R. W. Thorne	July 15	Turner Creek	7,000
R. W. Thorne	July 15	Bodinach Creek	7,000
A. S. Nichols	Sept. 15	Cool Creek	2,000
A. S. Nichols	Sept. 15	Morgan Creek	2,000
A. S. Nichols	Sept. 15	Miller Creek	2,000
		Total	45,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SISKIYOU COUNTY.

Distribution of Quinnat Salmon.

Applicant	Date	Water stocked	Number
Fish and Game Com.	Jan. 23	Cold Creek, tributary to Sacramento River	597,000
Fish and Game Com.	Jan. 25	Cold Creek, tributary to Sacramento River	692,000
Fish and Game Com.	Jan. 26	Sullaway Creek, tributary to Sacramento River	608,000
Fish and Game Com.	Jan. 27	Schoolhouse Creek, tributary to Sac. River	645,000
Fish and Game Com.	Jan. 28	Sullaway Creek, tributary to Sacramento River	347,000
Fish and Game Com.	Jan. 29	Spring Creek, tributary to Sacramento River	435,000
Fish and Game Com.	Jan. 30	Cold Creek, tributary to Sacramento River	181,000
Fish and Game Com.	Jan. 31	Sullaway Creek, tributary to Sacramento River	428,000
Fish and Game Com.	Feb. 5	Spring Creek, tributary to Sacramento River	655,000
Fish and Game Com.	Feb. 13	Schoolhouse Creek, tributary to Sac. River	400,000
Fish and Game Com.	Feb. 15	Schoolhouse Creek, tributary to Sac. River	650,000
Fish and Game Com.	Feb. 17	Spring Creek, tributary to Sacramento River	400,000
Fish and Game Com.	Feb. 18	Sullaway Creek, tributary to Sacramento River	550,000
Fish and Game Com.	Feb. 22	Sullaway Creek, tributary to Sacramento River	756,000
Fish and Game Com.	Feb. 23	Spring Creek, tributary to Sacramento River	300,000
Fish and Game Com.	Feb. 26	Sullaway Creek, tributary to Sacramento River	634,000
Fish and Game Com.	Feb. 27	Schoolhouse Creek, tributary to Sac. River	500,000
Fish and Game Com.	Mar. 1	Schoolhouse Creek, tributary to Sac. River	776,000
Fish and Game Com.	Mar. 2	Spring Creek, tributary to Sacramento River	600,000
Fish and Game Com.	Mar. 3	Cold Creek, tributary to Sacramento River	653,000
Fish and Game Com.	Mar. 5	Cold Creek, tributary to Sacramento River	500,000
Fish and Game Com.	Mar. 8	Cold Creek, tributary to Sacramento River	686,000
Fish and Game Com.	Mar. 10	Spring Creek, tributary to Sacramento River	600,000
Fish and Game Com.	Mar. 11	Cold Creek, tributary to Sacramento River	600,000
Fish and Game Com.	Mar. 13	Schoolhouse Creek, tributary to Sac. River	605,000
Fish and Game Com.	Mar. 16	Sullaway Creek, tributary to Sacramento River	500,000
Fish and Game Com.	Mar. 17	Sullaway Creek, tributary to Sacramento River	500,000
Fish and Game Com.	Mar. 18	Sullaway Creek, tributary to Sacramento River	389,000
Fish and Game Com.	Mar. 30	Cold Creek, tributary to Sacramento River	500,000
Fish and Game Com.	Mar. 31	Cold Creek, tributary to Sacramento River	602,000
Fish and Game Com.	April 5	Cold Creek, tributary to Sacramento River	500,000
Fish and Game Com.	April 6	Cold Creek, tributary to Sacramento River	500,000
Fish and Game Com.	April 7	Spring Creek, tributary to Sacramento River	507,000
Fish and Game Com.	April 11	Sullaway Creek, tributary to Sacramento River	500,000
Fish and Game Com.	April 12	Sullaway Creek, tributary to Sacramento River	500,000
Fish and Game Com.	April 14	Cold Creek, tributary to Sacramento River	506,000
Fish and Game Com.	April 15	Sullaway Creek, tributary to Sacramento River	400,000
Fish and Game Com.	April 17	Sullaway Creek, tributary to Sacramento River	500,000
Fish and Game Com.	April 18	Sullaway Creek, tributary to Sacramento River	477,000
Fish and Game Com.	April 20	Spring Creek, tributary to Sacramento River	309,000
Fish and Game Com.	April 22	Sullaway Creek, tributary to Sacramento River	654,000
Fish and Game Com.	April 25	Cold Creek, tributary to Sacramento River	600,000
Fish and Game Com.	April 26	Cold Creek, tributary to Sacramento River	353,000
Fish and Game Com.	April 27	Cold Creek, tributary to Sacramento River	300,000
Fish and Game Com.	April 28	Cold Creek, tributary to Sacramento River	500,000
Fish and Game Com.	April 29	Sullaway Creek, tributary to Sacramento River	555,000
Fish and Game Com.	April 30	Cold Creek, tributary to Sacramento River	500,000
Fish and Game Com.	May 2	Klamath River	450,000
Fish and Game Com.	May 4	Klamath River	200,000
Fish and Game Com.	Oct. 8	Cold Creek, tributary to Sacramento River	50,000
Fish and Game Com.	Oct. 13	Klamath River	200,000
Fish and Game Com.	Nov. 2	Sullaway Creek, tributary to Sacramento River	2,000,000
Fish and Game Com.	Nov. 2	Cold Creek, tributary to Sacramento River	2,970,000
Fish and Game Com.	Nov. 18	Klamath River	15,000
Fish and Game Com.	Nov. 19	Klamath River	15,000
		Total	30,295,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Silver Salmon.

Applicant	Date	Water stocked	Number
Fish and Game Com.	May 2	Klamath River	200,000
Fish and Game Com.	May 4	Klamath River	400,000
Fish and Game Com.	May 5	*Cold Creek, tributary to Sacramento River	746,000
		Total	1,346,000

*Silver Salmon planted in Cold Creek May 5 badly diseased; not considered worth hauling back to Klamath River.

Distribution of Black Spotted Trout.

Zick Abrams	Sept. 9	Abrams Lake	20,000

Distribution of Steelhead Trout.

R. P. Wilson	July 16	Deer Creek	6,000
Fish and Game Com.	July 18	Klamath River	350,000
McCloud River Lmbr. Co.	Aug. 9	McCloud River	27,500
McCloud River R. R. Co.	Aug. 9	McCloud River, east of Dry Creek	35,000
McCloud River R. R. Co.	Aug. 11	McCloud River, east of Dry Creek	37,500
McCloud River Lmbr. Co.	Aug. 11	McCloud River	25,000
Sisson Promotion Assn.	Aug. 12	Wagon Creek	30,000
Sisson Promotion Assn.	Aug. 12	Schoolhouse Creek	30,000
Sisson Promotion Assn.	Aug. 12	Spring Creek	50,000
Sisson Promotion Assn.	Aug. 12	Cold Creek	30,000
Sisson Promotion Assn.	Aug. 12	Sullaway Creek	60,000
Montague Gun Club	Aug. 25	Little Shasta Creek	16,000
Yreka Chamber of Com.	Aug. 25	Shasta River	20,000
F. O. Branstetter	Sept. 7	Sacramento River	10,000
		Total	727,000

Distribution of Loch Leven Trout.

B. Casalta	July 2	Wagon Creek	8,000
Sisson Promotion Club	July 2	Wagon Creek	10,000
Sisson Promotion Club	July 2	Spring Creek	15,000
Sisson Promotion Club	July 2	Sullaway Creek at Rupps	25,000
Robert Rupp	July 12	Sullaway Creek	15,000
McCloud River Lmbr. Co.	Aug. 9	McCloud River	22,000
McCloud River R. R. Co.	Aug. 9	McCloud River	22,000
W. L. Falkner	Aug. 25	Shasta River, headwaters	12,000
W. M. Bray	Aug. 25	Antelope Creek	5,000
O. E. Pile	Aug. 25	Butte Creek	5,000
Montague Gun Club	Aug. 25	Little Shasta Creek	4,000
Yreka Chamber of Com.	Aug. 25	Shasta River	16,000
Zick Abrams	Sept. 9	Abrams Lake	15,000
Dunsmuir Promotion Club	Aug. 29	Bear Creek	6,500
Dunsmuir Promotion Club	Aug. 29	Hedge Creek	4,500
Dunsmuir Promotion Club	Aug. 29	Soda Creek, Upper Branch	9,000
C. L. Lewis	Oct. 1	Cold Creek	35,000
Zick Abrams	Oct. 27	Abrams Lake	15,000
Sisson Promotion Club	Oct. 29	Cold Creek	5,000
		Total	249,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
B. Casalta	July 2	Wagon Creek	8,000
Sisson Promotion Club	July 2	Wagon Creek	6,000
Sisson Promotion Club	July 2	Spring Creek	4,000
Robert Rupp	July 12	Spring Creek	25,000
C. Lewis	July 15	Cold Creek	30,000
McCloud River R. R. Co.	Aug. 9	McCloud River, east of Dry Creek	14,000
McCloud River Lmbr. Co.	Aug. 9	McCloud River, east of Dry Creek	16,000
C. S. Erickson	Sept. 1	Bear Creek	6,000
		Total	109,000

Distribution of Rainbow Trout.

Sisson Promotion Club	July 2	Sullaway Creek	25,000
Sisson Promotion Club	July 2	Sullaway Creek at Rupps	35,000
R. P. Wilson	July 16	Deer Creek	20,000
McCloud River Lmbr. Co.	Aug. 9	McCloud River	24,000
McCloud River. R. R. Co.	Aug. 9	McCloud River, east of Dry Creek	26,000
McCloud River R. R. Co.	Aug. 11	McCloud River, east of Dry Creek	24,000
McCloud River Lmbr. Co.	Aug. 11	McCloud River	26,000
Mrs. R. C. Ney	Aug. 21	Little Shasta Creek	8,000
J. A. Carton	Aug. 25	Shasta River	12,000
W. M. Bray	Aug. 25	Antelope Creek	18,000
O. E. Pile	Aug. 25	Butte Creek	9,000
Montague Gun Club	Aug. 25	Little Shasta Creek	10,000
C. S. Erickson	Sept. 1	Bear Creek	6,000
Silas Nicholson	Sept. 1	Bear Creek	8,000
F. O. Branstetter	Sept. 7	Sacramento River	15,000
Zick Abrams	Sept. 9	Abrams Lake	25,000
Dunsmuir Promotion Club	Aug. 29	Bear Creek	6,500
Dunsmuir Promotion Club	Aug. 29	Hedge Creek	6,500
Dunsmuir Promotion Club	Aug. 29	Soda Creek, Upper Branch	7,000
C. Lewis	Oct. 1	Cold Creek	40,000
Zick Abrams	Oct. 27	Abrams Lake	15,000
		Total	366,000

SOLANO COUNTY.

Distribution of Steelhead Trout.

Winters Fish and Game Protective Association	July 21	Miller Creek	45,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SONOMA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
H. S. Gutermute	Aug. 6	Mark West Creek	20,000
W. R. Stearns	Sept. 27	Sonoma Creek	30,000
J. W. Wise	Sept. 27	Adobe Canyon	10,000
J. W. Wise	Sept. 27	Nuns Creek	10,000
J. W. Wise	Sept. 27	Johnson Creek	10,000
F. D. Trosper	Oct. 12	Austin Creek	35,000
F. D. Trosper	Oct. 12	Ward Creek	5,000
F. D. Trosper	Oct. 12	Bear Pen Creek	10,000
A. H. Richardson	Oct. 12	Stewart's Point Creek	20,000
A. H. Richardson	Oct. 12	Fort Ross Creek	5,000
H. C. McCaughey	Oct. 18	Salmon Creek	25,000
		Total	180,000

Distribution of Rainbow Trout.

H. S. Gutermute	Oct. 12	Mark West Creek	6,000

TEHAMA COUNTY.

Distribution of Steelhead Trout.

C. W. De Long	July 8	Mill Creek	9,000
J. A. Owen	July 8	South Fork of Cottonwood Creek	12,000
U. S. Forestry Service	Aug. 21	Battle Creek at Lower Bridge	5,000
U. S. Forestry Service	Aug. 21	Martin Creek at Mineral Co.	5,000
U. S. Forestry Service	Aug. 21	Battle Creek at Upper Bridge	10,000
A. B. McCollum	Aug. 21	Deer Creek	7,500
		Total	48,500

Distribution of Loch Leven Trout.

W. E. Hamlin	July 8	Mill Creek	12,500
Walter Stoll	Aug. 14	Elder Creek	6,000
H. H. Zimmerman	Aug. 28	Mill Creek	4,000
		Total	22,500

Distribution of Eastern Brook Trout.

Geo. Neale	Aug. 21	Mill Creek	6,000
Geo. Neale	Aug. 21	Battle Creek	6,000
H. H. Zimmerman	Aug. 28	Mill Creek	4,000
		Total	16,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
C. W. De Long	July 8	Mill Creek	5,000
J. A. Owen	July 8	South Fork of Cottonwood Creek	5,000
Casper Ehorn	July 8	Maple Creek	2,500
Walter Stoll	Aug. 14	Elder Creek	4,000
A. B. McCollum	Aug. 21	Deer Creek	5,000
H. H. Zimmerman	Aug. 28	Mill Creek	4,000
E. C. Powell	Aug. 28	Antelope Creek	14,000
Andrew Shafer	Sept. 8	Upper Antelope Creek	20,000
		Total	59,500

TRINITY COUNTY.

Distribution of Rainbow Trout.

C. E. Carr	Oct. 11	Trinity River	8,000

TULARE COUNTY.

Distribution of Steelhead Trout.

Porterville Fish and Game Association	Sept. 3	South Tule River	10,000
Tule River Fishing and Shooting Association	Sept. 3	Tule River	16,000
Deer Creek Fish and Game Protective Association	Sept. 3	Tyler Creek	8,000
Deer Creek Fish and Game Protective Association	Sept. 3	Deer Creek	8,000
C. A. Kirkpatrick	Sept. 3	Tule River	8,000
Ed Cramer	Sept. 3	White River	3,000
Ed Cramer	Sept. 3	Upper Peale River	3,000
H. M. Berry	Sept. 3	Posey Creek	6,000
		Total	62,000

Distribution of Loch Leven Trout.

Porterville Fish and Game Association	Sept. 3	Kissing Creek	4,000
Deer Creek Fish and Game Protective Association	Sept. 3	Tyler Creek	5,000
Deer Creek Fish and Game Protective Association	Sept. 3	Deer Creek	5,000
Ed Cramer	Sept. 3	White River	3,000
Ed Cramer	Sept. 3	Upper Peale River	3,000
H. M. Berry	Sept. 3	Posey Creek	6,000
		Total	26,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
Porterville Fish and Game Association	Sept. 8	South Tule River	9,000
Porterville Fish and Game Association	Sept. 8	Kissing Creek	11,000
Tule River Fishing and Shooting Association	Sept. 8	Tule River	18,000
Deer Creek Fish and Game Protective Association	Sept. 8	Deer Creek	5,000
Deer Creek Fish and Game Protective Association	Sept. 8	Tyler Creek	5,000
C. A. Kirkpatrick	Sept. 8	Tule River	8,000
		Total	56,000

TUOLUMNE COUNTY.

Distribution of Steelhead Trout.

Lewis Elliott	Sept. 9	Stanislaus River	10,000
Sierra & S. F. Power Co.	Sept. 9	Indian Creek	7,000
Geo. F. Conlin	Sept. 9	Stanislaus River, south fork	12,000
Board of Supervisors, Tuolumne County	Sept. 9	Tuolumne River, south fork	12,000
Board of Supervisors, Tuolumne County	Sept. 9	Tuolumne River, north fork	8,000
Board of Supervisors, Tuolumne County	Sept. 14	Tuolumne River, north fork	10,000
Board of Supervisors, Tuolumne County	Sept. 14	Sullivans Creek	12,000
Board of Supervisors, Tuolumne County	Sept. 14	Stanislaus River, main waters	4,000
		Total	75,000

Distribution of Black Spotted Trout.

Lewis Elliott	Sept. 9	Stanislaus River	3,000
Lewis Elliott	Sept. 9	Rose Creek	3,000
Sierra & S. F. Power Co.	Sept. 9	Stanislaus River, at power house	15,000
		Total	21,000

Distribution of Loch Leven Trout.

Lewis Elliott	Sept. 9	Stanislaus River	4,000
Geo. F. Conlin	Sept. 9	Stanislaus River, south fork	4,000
Board of Supervisors, Tuolumne County	Sept. 9	Stanislaus River, main waters	10,000
Board of Supervisors, Tuolumne County	Sept. 9	Releaf Stream	20,000
		Total	38,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Eastern Brook Trout.

Applicant	Date	Water stocked	Number
Geo. F. Conlin	Sept. 9	Stanislaus River, south fork	4,000

Distribution of Rainbow Trout.

Lewis Elliott	Sept. 9	Main Fork of Stanislaus River	4,000
Sierra & S. F. Power Co.	Sept. 9	Forebay, Stanislaus River	15,000
Sierra & S. F. Power Co.	Sept. 9	Sand Bar Dam, Stanislaus River	15,000
Geo. F. Conlin	Sept. 9	Stanislaus River, south fork	8,000
Board of Supervisors, Tuolumne County	Sept. 9	Tuolumne River, south fork	20,000
Board of Supervisors, Tuolumne County	Sept. 9	Tuolumne River, north fork	16,000
Board of Supervisors, Tuolumne County	Sept. 14	Tuolumne River, north fork	6,000
Board of Supervisors, Tuolumne County	Sept. 14	Crow Creek	4,000
Board of Supervisors, Tuolumne County	Sept. 14	Stanislaus River, main waters	34,000
		Total	122,000

VENTURA COUNTY.

Distribution of Quinnat Salmon.

J. J. Barnett	Oct. 8	Ventura River	25,000

Distribution of Steelhead Trout.

Geo. Rissman	Oct. 7	Sisar Creek	4,000
G. C. Hollister	Oct. 8	Agua Blanca Creek	10,000
J. J. Barnett	Oct. 8	Ventura River	50,000
J. J. Barnett	Oct. 8	San Antonio Creek	25,000
J. J. Barnett	Oct. 8	Coyote Creek	25,000
J. J. Barnett	Oct. 8	Seesaw Creek	8,000
Elkins & Temple	Oct. 8	Hopper Creek	4,000
W. W. Wilcox	Oct. 8	North Fork of Matilya River	10,000
W. W. Wilcox	Oct. 8	North Fork of Matilya River	6,000
J. J. Barnett	Oct. 21	Ventura River	12,000
J. J. Barnett	Oct. 21	San Antonio Creek	48,000
H. I. Pritchard	Oct. 22	Sespe River	20,000
		Total	222,000

Distribution of Loch Leven Trout.

W. W. Laidley	Sept. 8	Seymore Creek	6,000
T. E. Klipstein	Oct. 5	Seymore Creek	4,000
		Total	10,000

SISSON HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

STATE OF NEVADA.

Distribution of Rainbow Trout.

Applicant	Date	Water stocked	Number
W. W. Laidley	Sept. 8	Seymore Creek	4,000
T. E. Klipstein	Oct. 5	Lockwood Creek	4,000
J. J. Barnett	Oct. 8	North Fork	2,000
J. J. Barnett	Oct. 8	Reyes Creek	2,000
W. W. Wilcox	Oct. 8	North Fork of Matilya River	2,000
		Total	14,000

Distribution of Silver Salmon Eggs.

Nevada State Fish Commission	Feb. 14	Planted in state of Nevada	100,000

STATE OF OREGON.

Distribution of Black Spotted Trout.

James Withycombe	July 2	Wallowa Lake in eastern Oregon	100,000

PONDS, SISSON HATCHERY.

Rainbow Trout, Retained in Ponds.

Fish and Game Com.	Oct. 20	Retained in ponds at Sisson Hatchery	130,000

TAHOE HATCHERY.

Fish Distribution by Counties. Season 1915.

ALPINE COUNTY.

Distribution of Black Spotted Trout.

Grant P. Merrill	Aug. 17	East Carson (Silver Creek)	6,000
Grant P. Merrill	Aug. 17	East Carson (Hot Spring Creek)	6,000
Grant P. Merrill	Aug. 17	West Carson (Woodford Canyon)	21,000
Grant P. Merrill	Aug. 17	West Carson (Hope Valley)	12,000
Grant P. Merrill	Aug. 17	West Carson (near Woodfords)	6,000
Chas. W. Tryon	Aug. 17	Silver Ring Creek	12,000
Chas. W. Tryon	Aug. 17	Wolf Creek	6,000
Chas. W. Tryon	Aug. 17	North Fork of Mokelumne River	6,000
		Total	75,000

TAHOE HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

EL DORADO COUNTY.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
Fish and Game Com.	June 23	Power House Ditch	40,000
Fish and Game Com.	June 26	Tallac Creek	100,000
Fish and Game Com.	June 26	Power House Ditch	50,000
Fish and Game Com.	June 27	Taylor Creek	100,000
Fish and Game Com.	June 28	Tallac Creek Slough	95,000
Fish and Game Com.	June 29	Tallac Creek Slough	100,000
Fish and Game Com.	June 29	Green Bay, Fallen Leaf Lake	100,000
Fish and Game Com.	June 29	Cascade Lake	100,000
Fish and Game Com.	June 30	Tallac Creek Slough	74,000
Fish and Game Com.	July 8	Taylor Creek	100,000
Fish and Game Com.	July 11	Tallac Creek	100,000
Fish and Game Com.	July 11	Cascade Lake	100,000
Glen Alpine Co.	July 12	Susie Lake	40,000
Glen Alpine Co.	July 13	Grass Lake	40,000
Glen Alpine Co.	July 14	Cascade Lake	96,000
Glen Alpine Co.	July 14	Half Moon Lake	40,000
Fish and Game Com.	July 15	Fallen Leaf Lake	50,000
Fish and Game Com.	July 15	Little Truckee River	50,000
Glen Alpine Co.	July 15	Gilmore Lake	40,000
Fish and Game Com.	July 16	Little Truckee River	100,000
Glen Alpine Co.	July 16	Susie Lake	20,000
Glen Alpine Co.	July 16	Grass Lake	20,000
Fish and Game Com.	July 17	Tallac Creek Slough	100,000
Al Tahoe Co.	July 18	Trout Creek	25,000
Fish and Game Com.	July 19	Little Truckee River	90,000
Fish and Game Com.	July 19	Taylor Creek	24,000
Fish and Game Com.	July 29	Meiggs Bay Creek	25,000
C. T. Bradley	Sept. 20	Emerald Bay	25,000
E. G. Schmiedel	Oct. 3	Rabbit Lake	12,000
		Total	1,856,000

NEVADA COUNTY.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
James McIver	Aug. 31	Donner Creek	15,000
Truckee Chamber of Com.	Sept. 9	Donner Lake	25,000
Truckee Chamber of Com.	Sept. 10	Donner Lake	25,000
Truckee Chamber of Com.	Sept. 11	Donner Lake	25,000
E. J. Baldwin	Sept. 18	Donner Lake	30,000
E. F. Stewart	Sept. 23	West Lakes	15,000
H. N. Freeman	Sept. 24	Lakes on ridge above Lake Sterling	50,000
Joseph Gouling and John Sherrett	Sept. 24	Lake Sherrett	18,000
		Total	203,000

TAHOE HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

PLACER COUNTY.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
Fish and Game Com.	Aug. 27	Slim Jim Creek	50,000
Tahoe Vista Hotel Co.	Aug. 30	Griff Creek	25,000
Fish and Game Com.	Sept. 13	Lake Tahoe, near Island Park	30,000
Fish and Game Com.	Sept. 17	Lake Tahoe, near Island Park	50,000
Fish and Game Com.	Sept. 21	Machine Shop Creek	30,500
E. R. Rees	Sept. 23	Crystal Lake	12,000
Fish and Game Com.	Sept. 25	Burton Creek Slough	22,500
Fish and Game Com.	Sept. 28	Burton Creek Slough	25,000
Fish and Game Com.	Sept. 30	Lake Tahoe, near car barns	20,000
Fish and Game Com.	Oct. 1	Lake Tahoe, source of Truckee River	30,000
Fish and Game Com.	Oct. 4	Burton Creek Slough	20,000
Fish and Game Com.	Oct. 6	Blackwood Creek	30,000
Fish and Game Com.	Oct. 8	Ward Creek	35,000
Fish and Game Com.	Oct. 11	Tahoe Lake, Island Park Tules	25,000
Fish and Game Com.	Oct. 12	Ward Creek	25,000
H. N. Freeman	Oct. 12	Lake Stirling	20,000
Fish and Game Com.	Oct. 12	Slim Jim Creek	14,000
		Total	464,000

SIERRA COUNTY.

Distribution of Black Spotted Trout.

Webber Lake Club	Sept. 7	Webber Lake and Inlet	60,000

BROOKDALE HATCHERY.

Fish Distribution by Counties. Season 1915.

MONTEREY COUNTY.

Distribution of Steelhead Trout.

J. L. Roberts	July 7	Garrapatis Creek	3,000
J. L. Roberts	July 7	Mill Creek	3,000
J. L. Roberts	July 7	Serra Hill Creek	2,000
J. L. Roberts	July 7	Rocky Creek	2,000
J. L. Roberts	July 7	North Fork of Little River	5,000
J. L. Roberts	July 7	South Fork of Little River	5,000
J. L. Roberts	July 7	Big Sur River	10,000
A. H. Abbott	July 13	Arroyo Seco	30,000
J. L. Roberts	Aug. 5	Lower Carmel	45,000
J. L. Roberts	Aug. 7	Pola Colorado	3,000
J. L. Roberts	Aug. 7	Rocky Creek	3,000
J. L. Roberts	Aug. 7	Mill Creek	4,500
J. L. Roberts	Aug. 7	Little Sur River	12,000
J. L. Roberts	Aug. 7	Big Sur River	22,500
		Total	150,000

BROOKDALE HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SANTA CLARA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
I. L. Koppel	July 15	Trout Creek	2,000
I. L. Koppel	July 15	Waible Creek	2,000
I. L. Koppel	July 15	Ysabel Creek	6,000
I. L. Koppel	July 15	Arroyo Honda	5,000
I. L. Koppel	July 17	Stevens Creek	15,000
I. L. Koppel	July 17	San Francisquito Creek	5,000
I. L. Koppel	July 19	Almaden and tributaries	15,000
I. L. Koppel	July 20	Saratoga and Quito	12,000
I. L. Koppel	July 20	Van Ness Creek	5,000
I. L. Koppel	July 20	Booker Creek	5,000
I. L. Koppel	July 21	Llagas and tributaries	22,000
I. L. Koppel	July 22	Lower Coyote	8,000
I. L. Koppel	July 22	Los Animas	6,000
I. L. Koppel	July 22	Packwood	3,000
I. L. Koppel	July 22	Laurel Creek	3,000
I. L. Koppel	July 24	Stevens Creek	7,000
I. L. Koppel	July 24	Borde Creek	5,000
I. L. Koppel	July 24	Right Fork	5,000
I. L. Koppel	July 24	Left Fork	5,000
I. L. Koppel	July 25	Silver Creek	2,000
I. L. Koppel	July 25	San Felipe	10,000
I. L. Koppel	July 25	Dry Creek	3,000
I. L. Koppel	July 26	Alum Rock and Penetentia	13,000
I. L. Koppel	July 26	Bonita	3,000
I. L. Koppel	July 26	Ysabel and Arroyo Honda	6,000
I. L. Koppel	July 27	Uvas	15,000
I. L. Koppel	July 27	Little Arthur	3,000
I. L. Koppel	July 29	Long Bridge Creek	6,000
I. L. Koppel	July 29	Sweigert Creek	4,500
I. L. Koppel	July 29	Little Uvas Creek	4,500
I. L. Koppel	July 29	Ayer's Creek, Sargent	3,000
I. L. Koppel	July 29	Coyote Creek, Gilroy Hot Springs Branch	4,000
I. L. Koppel	July 29	Murphy Creek and Bodfish	4,000
F. Marriott	July 25	Uvas Creek	10,000
Los Gatos Fish and Game Protective Association	July 11	Cavanaugh Creek	5,000
Los Gatos Fish and Game Protective Association	July 11	Lyndon Creek	3,000
Los Gatos Fish and Game Protective Association	July 11	Austin	3,000
Los Gatos Fish and Game Protective Association	July 11	Hooker	5,000
Los Gatos Fish and Game Protective Association	July 24	Guadalupe Creek	12,000
E. L. Coldron	July 21	Los Gatos Creek	10,000
		Total	265,000

SANTA CRUZ COUNTY.

Distribution of Silver Salmon.

Santa Cruz Co.	Mar. 21	San Lorenzo River	28,000
Santa Cruz Co.	April 11	Scott Creek	25,000
Santa Cruz Co.	April 12	San Lorenzo River	18,000
		Total	71,000

TAHOE HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Santa Cruz Co.	May 20	Love Creek	10,000
Santa Cruz Co.	May 21	Upper San Lorenzo River	18,000
Santa Cruz Co.	May 22	Kings Creek	12,000
Santa Cruz Co.	May 22	Two Bar Creek	6,000
Santa Cruz Co.	May 23	Fall Creek	17,000
Santa Cruz Co.	May 23	Newell Creek	16,000
Santa Cruz Co.	May 24	Bear Creek	12,000
Santa Cruz Co.	May 24	Deer Creek	8,000
Santa Cruz Co.	May 25	Jamison Creek	8,000
Santa Cruz Co.	May 25	Boulder Creek	12,000
Santa Cruz Co.	May 25	Scotts Creek	10,000
Santa Cruz Co.	May 26	Wadell Creek	22,000
Santa Cruz Co.	May 26	Sempervirens	8,000
Santa Cruz Co.	May 27	Zayante No. 5	2,000
Santa Cruz Co.	May 27	Felton Reservoir Creek	2,000
Santa Cruz Co.	May 27	Bean Creek	8,000
Santa Cruz Co.	May 27	Granite Creek	6,000
Santa Cruz Co.	May 28	Lompico Creek	10,500
Santa Cruz Co.	May 28	Gold Gulch Creek	4,500
Santa Cruz Co.	May 29	Branciforte Creek	15,000
Santa Cruz Co.	May 29	Laurel Glenn Creek	10,000
Santa Cruz Co.	May 30	Big Creek	10,000
Santa Cruz Co.	May 30	Mill Creek	10,000
Santa Cruz Co.	June 2	Wilders Creek	5,000
Santa Cruz Co.	June 2	Majors Creek	3,000
Santa Cruz Co.	June 2	Santa Cruz City Reservoir	2,000
Santa Cruz Co.	June 4	Hubbard Gulch Creek	7,500
Santa Cruz Co.	June 4	Shingle Mill Creek	2,500
Santa Cruz Co.	June 4	Big Tree Creek	2,000
Santa Cruz Co.	June 6	Laguna Creek	18,000
Santa Cruz Co.	June 6	Lidell Creek	9,000
Santa Cruz Co.	June 6	Coja Creek	6,000
Santa Cruz Co.	June 8	Glenn Canyon Creek	4,500
Santa Cruz Co.	June 8	Branciforte Creek, west fork	7,500
Santa Cruz Co.	June 9	Tunnel Creek	4,000
Santa Cruz Co.	June 9	Soquel Creek, west fork	14,000
Santa Cruz Co.	June 10	Amaya Creek	8,000
Santa Cruz Co.	June 10	Hester Creek	8,000
Santa Cruz Co.	June 11	Bean Creek	10,000
Santa Cruz Co.	June 11	Zayante Creek	12,000
Santa Cruz Co.	June 13	Big Creek	7,000
Santa Cruz Co.	June 13	San Vincente Creek	18,000
Santa Cruz Co.	June 14	Big Creek	6,000
Santa Cruz Co.	June 14	Boyer Creek	9,000
Santa Cruz Co.	June 14	Mill Creek	6,000
Santa Cruz Co.	June 17	Shingle Mill Creek	10,000
Santa Cruz Co.	June 18	Eureka Canyon Creek	4,000
Santa Cruz Co.	June 18	Shingle Mill Creek	2,000
Santa Cruz Co.	June 18	Diablo Creek	6,000
William McGrath	June 18	Cassuly	6,000
Santa Cruz Co.	June 19	Brown Valley Creek	10,000
Santa Cruz Co.	June 21	Soquel Creek	12,000
Santa Cruz Co.	June 22	Brown Valley Creek	14,000
Santa Cruz Co.	June 23	Pescadero Creek	12,000
Santa Cruz Co.	June 25	Aptos Creek	10,000
Santa Cruz Co.	June 25	Valencia Creek	8,000
Santa Cruz Co.	July 21	Hester Creek	2,000
Fish and Game Com.	Aug. 2	Scotts Creek	45,000
Fish and Game Com.	Aug. 3	Scotts Creek	45,000
S. C. Marcus	Aug. 5	Soquel Creek	14,000
S. C. Marcus	Aug. 5	Diablo Creek	2,000
Fish and Game Com.	Aug. 9	San Lorenzo River	47,000
		Total	655,000

BEAR VALLEY STATION.

Fish Distribution by Counties. Season 1915.

SAN BERNARDINO COUNTY.

Distribution of Black Spotted Trout.

Applicant	Date	Water stocked	Number
Fish and Game Com.	July 18	Bear Lake, Big	120,000
Fish and Game Com.	July 20	Bear Lake, Big	120,000
		Total	240,000

Distribution of Rainbow Trout.

Fish and Game Com.	July 8	Grays Meadows	3,000
Fish and Game Com.	July 8	Deer Creek	9,000
Fish and Game Com.	July 8	Upper Santa Ana	21,000
Fish and Game Com.	July 9	Bear Creek, below the dam	50,000
Fish and Game Com.	July 10	Bear Creek, below the dam	10,000
Fish and Game Com.	July 10	Deer Creek	30,000
Fish and Game Com.	July 11	Bear Lake	10,000
Fish and Game Com.	July 11	Huston Creek	25,000
Fish and Game Com.	July 11	Seeley Creek	5,000
Fish and Game Com.	July 11	Dark Canyon	10,000
Fish and Game Com.	July 18	Bear Lake, Big	120,000
Fish and Game Com.	July 20	Bear Lake, Big	120,000
		Total	413,000

PRICE CREEK HATCHERY.

Fish Distribution by Counties. Season 1915.

HUMBOLDT COUNTY.

Distribution of Quinnat Salmon.

Arcata Chamber of Com.	Mar. 31	Mad River	70,000
Humboldt Chamber Com.	April 1	Freshwater	70,000
Arcata Chamber of Com.	April 3	Mad River	70,000
Eureka Chamber of Com.	April 4	Jacoby Creek	70,000
Fish and Game Com.	April 5	Price Creek	300,000
Eureka Chamber of Com.	April 6	Elk River	70,000
Arcata Chamber of Com.	April 7	Mad River	70,000
Eureka Chamber of Com.	April 8	Elk River	70,000
Fish and Game Com.	April 8	Price Creek	200,000
Arcata Chamber of Com.	April 9	Mad River	70,000
Fish and Game Com.	April 9	Price Creek	143,500
Humboldt Chamber Com.	April 10	Freshwater	70,000
Arcata Chamber of Com.	April 12	Mad River	70,000
Humboldt Chamber Com.	April 13	Jacoby Creek	70,000
Humboldt Chamber Com.	April 14	Elk River	70,000
Fish and Game Com.	April 15	Eel River	100,000
Fish and Game Com.	April 15	Price Creek	50,000
Fish and Game Com.	April 16	Eel River	250,000
Fish and Game Com.	April 16	Price Creek	50,000
Fish and Game Com.	April 17	Eel River	250,000
Fish and Game Com.	April 17	Price Creek	50,000
Fish and Game Com.	April 18	Eel River	250,000
Fish and Game Com.	April 18	Price Creek	50,000
Fish and Game Com.	April 19	Price Creek	200,000
Fish and Game Com.	April 20	Price Creek	234,650
		Total	2,968,150

PRICE CREEK HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
Humboldt Chamber Com.	April 1	Jacoby Creek	70,000
Eureka Chamber of Com.	April 3	Elk River	30,000
Eureka Chamber of Com.	April 4	Elk River, South Fork and Little South Fork	40,000
Fish and Game Com.	April 5	Freshwater	70,000
Eureka Chamber of Com.	April 6	Elk River	70,000
Arcata Chamber of Com.	April 7	Freshwater	70,000
Eureka Chamber of Com.	April 8	Elk River	70,000
Fish and Game Com.	April 8	Mad River	70,000
Arcata Chamber of Com.	April 9	Mad River	70,000
Fish and Game Com.	April 9	Maple Creek	70,000
Humboldt Chamber Com.	April 10	Huntly Creek	70,000
Arcata Chamber of Com.	April 12	Redwood Creek	70,000
Humboldt Chamber Com.	April 13	Price Creek	27,000
Humboldt Chamber Com.	April 14	Howe Creek	50,000
		Total	847,000

UKIAH HATCHERY.

LAKE COUNTY.

Distribution of Steelhead Trout.

Mountain Imp. Club	June 30	Cold Creek	15,000
Mountain Imp. Club	July 7	Cold Creek and tributaries	15,000
Fish and Game Com.	July 29	Little Sulphur Creek	25,000
J. B. Robinson	July 31	Clover Creek	30,000
		Total	85,000

MENDOCINO COUNTY.

Distribution of Steelhead Trout.

B. M. Bucknell	June 13	Robinson Creek	30,000
Fish and Game Com.	June 14	Jack Smith Creek	40,000
W. A. Graham	June 15	Walker Creek	20,000
Fish and Game Com.	June 16	Russian River (below mouth of Cold Creek)	25,000
Bob Jones	June 16	Vichy Creek	25,000
Fish and Game Com.	June 17	Cold Creek	25,000
Fish and Game Com.	June 22	Orr Creek	30,000
Mendocino State Hospital	June 22	Mill Creek	20,000
J. W. Harris	June 29	Feliz Creek	25,000
Fish and Game Com.	June 30	Seward Creek	30,000
Fish and Game Com.	July 1	Reeves Canyon Creek	30,000
Fish and Game Com.	July 2	Ackerman Creek	25,000
J. W. Harris	July 3	Cummiskey Creek	8,000
J. W. Harris	July 3	Vassar Creek	17,000
Fish and Game Com.	July 12	Walker Valley Creek	35,000
Mendocino State Hospital	July 13	Mill Creek, south	15,000
Fish and Game Com.	July 15	Big River (Orrs Hot Springs)	35,000
Fish and Game Com.	July 16	Redwood Valley Creek	30,000
W. A. Graham	July 16	Walker Creek	15,000
F. W. Harmon	July 17	Sherwood Creek	15,000
C. E. Black	July 23	Woodman Creek	12,000
		Total	507,000

UKIAH HATCHERY—Continued.

Fish Distribution by Counties. Season 1915.

SONOMA COUNTY.

Distribution of Steelhead Trout.

Applicant	Date	Water stocked	Number
J. A. McMinn	June 23	Little Sulphur	20,000
J. A. McMinn	June 23	Warm Spring	26,000
J. A. McMinn	June 23	Mill Creek	24,000
J. M. Alexander	July 7	Mill Creek	17,500
J. M. Alexander	July 7	Warm Spring	17,500
J. M. Alexander	July 7	Little Sulphur	15,000
Fish and Game Com.	July 21	Sulphur Creek	40,000
Fish and Game Com.	July 27	Sulphur Creek	24,000
		Total	184,000

SNOW MOUNTAIN STATION.

LAKE COUNTY.

Distribution of Steelhead Trout.

Fish and Game Com.	June 19	Soda Creek	10,000
Fish and Game Com.	June 19	Panther Creek	10,000
		Total	20,000

MENDOCINO COUNTY.

Distribution of Steelhead Trout.

Fish and Game Com.	June 6	Whitney Creek (above fourth falls)	12,000
Fish and Game Com.	June 17	Whitney Creek	35,000
Fish and Game Com.	June 18	Trout Creek (two miles above dam)	40,000
Fish and Game Com.	June 18	Eel River (above fork from Snow Mountain)	75,000
Sam Holms	June 18	Mill Creek	50,000
Fish and Game Com.	June 20	Whitney Creek	50,000
Fish and Game Com.	June 20	Russian River (near power plant)	30,000
		Total	292,000

Summary of the Number of Fish Eggs Taken and the Number of Fry Which Will be Available for Distribution During the Season 1916.

Species	Eggs	Estimated loss	Shipped to other stations	Estimated number available for distribution	Estimated total available for distribution
Sisson Hatchery.					
Rainbow trout	2,227,740	287,740		1,940,000	
Eastern brook trout	2,227,000	155,000		2,072,000	
Loch Leven trout	1,839,000	109,000	125,000	1,605,000	
Black spotted trout	975,000	25,000		950,000	
Steelhead trout	3,036,000	95,000		2,941,000	
German brown trout	100,000	11,000		89,000	
					9,597,000
Quinnat salmon	18,398,340	398,340		18,000,000	18,000,000
Total					27,597,000
Tahoe Hatcheries.					
Black spotted trout	4,102,700	217,700	1,116,000	2,769,000	
Rainbow trout	240,000	25,000		215,000	
					2,984,000
Fort Seward Hatchery.					
Steelhead trout	1,002,000	77,000		925,000	
Black spotted trout	141,000	8,000		133,000	
Rainbow trout	105,000	10,000		95,000	
					1,153,000
Brookdale Hatchery.					
Steelhead trout	1,994,000	439,000	678,000		877,000
Ukiah Hatchery.					
Steelhead trout	556,000	111,000		445,000	445,000
Quinnat salmon	1,000,000	44,000		956,000	956,000
Snow Mountain Station.					
Steelhead trout	4,642,000	543,000	3,915,000	184,000	184,000
Bear Valley Hatchery.					
Rainbow trout	1,286,000	536,000		750,000	750,000
Almanor Hatchery.					
Rainbow trout	1,635,000	148,212	1,285,000	201,788	201,788
Marlett Lake-Carson Hatchery.					
Eastern brook trout	694,000	57,000	527,000	110,000	110,000
Total trout					16,301,788
Total salmon					18,956,000

STATE GAME FARM, HAYWARD.

Distribution, Sale, Liberation, etc., of Game Birds. July 1, 1914, to June 30, 1916.

Date	Applicant	Address	Pheasants	Quail	Miscellaneous
July 1, 1914	P. Verzic	Hayward, Alameda County	2		
Aug. 28, 1914	Mrs. M. Stephens	Alameda, Alameda County	2		
Aug. 31, 1914	A. H. Hesse	Mt. Eden, Alameda County	2		
Jan. 6, 1915	John Penke	Mt. Eden, Alameda County	2		
Jan. 7, 1915	Mrs. D. Gansberger	San Lorenzo, Alameda County	2		
Jan. 12, 1915	Jacob Harder, Jr.	Hayward, Alameda County	5		
Jan. 27, 1915	Miss C. Pestdorf	Hayward, Alameda County	1		
Feb. 10, 1915	R. H. Heger	Oakland, Alameda County	1		
Feb. 28, 1915	John Penke	Mt. Eden, Alameda County	2		
Mar. 5, 1915	Jacob Harder, Jr.	Hayward, Alameda County	1		
Mar. 9, 1915	Mr. Stevens	Alameda, Alameda County	2		
Mar. 10, 1915	A. H. Hesse	Mt. Eden, Alameda County	1		
Mar. 11, 1915	C. R. King	Hayward, Alameda County	1		
April 11, 1915	A. Vanderbilt	Oakland, Alameda County	1		
May 17, 1915	A. H. Hesse	Mt. Eden, Alameda County	1		
May 18, 1915	Jos. Sanders	Oakland, Alameda County	*15		
May 23, 1915	Percy Oliveira	San Lorenzo, Alameda County	*12		
July 29, 1915	M. Curtiss	Oakland, Alameda County		12	
Aug. 2, 1915	E. W. Gifford	Oakland, Alameda County			1
Oct. 11, 1915	Peoples Water Co.	Oakland, Alameda County	50		
Nov. 28, 1915	Peter M Verzic	Hayward, Alameda County	2		
Dec. 23, 1915	A. H. Hesse	Mt. Eden, Alameda County	1		
Feb. 9, 1916	Bert L. Curtiss	Oakland, Alameda County	1		
Mar. 12, 1916	Bert L. Curtiss	Oakland, Alameda County	1		
Mar. 11, 1916	Dr. J. A. Plunkett	Oakland, Alameda County		1	
Mar. 18, 1916	J. I. Sedgley	Alameda, Alameda County	3		
Mar. 24, 1916	Jacob Harder, Jr.	Hayward, Alameda County	12		
Mar. 25, 1916	Dr. C. J. Schilling	Oakland, Alameda County	1		
Mar. 25, 1916	Heger & Harris	Oakland, Alameda County	2		
April 3, 1916	Arthur Manter	Hayward, Alameda County	2		
May 15, 1916	Dr. C. J. Schilling	Oakland, Alameda County		1	
Feb. 3, 1915	Chas. R. Wells	Fourth Crossing, Calaveras County	1		
Oct. 21, 1915	A. V. Lisenby	Fresno, Fresno County	1		
Nov. 9, 1915	A. D. Ferguson	Fresno, Fresno County	25		
April 25, 1916	A. H. Brown	Fresno, Fresno County	2		
Mar. 1, 1915	C. W. Kellogg	Bakersfield, Kern County		1	
Mar. 18, 1915	S. K. Tevis	Bakersfield, Kern County	6		
Mar. 29, 1915	T. C. Dodge	Bakersfield, Kern County	2		
Aug. 30, 1915	E. W. Smalley	Hanford, Kings County	4		
Mar. 17, 1916	W. H. Roberts	Seigler Springs, Lake County	8		
Aug. 11, 1914	A. G. Wild	Los Angeles, Los Angeles County	2		
Aug. 28, 1914	A. G. Wild	Los Angeles, Los Angeles County	3		
Oct. 14, 1915	J. B. Lampman	Pasadena, Los Angeles County		1	
Feb. 14, 1916	S. A. Denker	Los Angeles, Los Angeles County	8		
Mar. 2, 1916	S. M. Morgan	Los Angeles, Los Angeles County	2		
Mar. 20, 1916	J. B. Lampman	Pasadena, Los Angeles County	1		
May 1, 1916	S. A. Denker	Los Angeles, Los Angeles County	1		
Dec. 1, 1915	Madera County Park	Madera, Madera County	2		
Aug. 8, 1915	A. J. Molera	Monterey, Monterey County	50		
Aug. 16, 1915	P. H. Oyer	Pacific Grove, Monterey County	25		
Nov. 10, 1915	P. H. Oyer	Pacific Grove, Monterey County	1		
Nov. 15, 1915	J. H. Hill	Watsonville, Monterey County	30		
Mar. 2, 1915	F. W. Kiesel	Sacramento, Sacramento County	12		
July 12, 1915	F. W. Kiesel	Sacramento, Sacramento County	100		
July 30, 1915	Geo. Thisby	Walnut Grove, Sacramento County	25		
Aug. 12, 1915	State Agr. Society	Sacramento, Sacramento County	6		
Aug. 27, 1915	State Agr. Society	Sacramento, Sacramento County		6	
Dec. 27, 1915	F. W. Kiesel	Sacramento, Sacramento County	10		
Mar. 22, 1916	Jack Hinters	Sacramento, Sacramento County	1		
Jan. 25, 1915	Tom Hawkins	Hollister, San Benito County	5		
Mar. 15, 1916	Jas. N. Colomb	San Francisco (liberated in San Benito County)	10		

STATE GAME FARM, HAYWARD—Continued.

Distribution, Sale, Liberation, etc., of Game Birds. July 1, 1914, to June 30, 1916.

Date	Applicant	Address	Pheasants	Quail	Miscellaneous
Mar. 29, 1916	Paicines Ranch Co.	Paicines, San Benito County	77		
April 9, 1915	J. Kappler	San Francisco	------	1	
Aug. 18, 1915	Dr. Stephen Piper	San Francisco	------	1	
Oct. 8, 1915	U. S. Naval Station	Goat Island, San Francisco County	22		
Oct. 22, 1915	Federal Laboratory	San Francisco	------	12	
Feb. 25, 1916	Chas. F. Breidenstein	San Francisco	------	------	3
April	Theo. Kytka	San Francisco	------	------	1
Oct. 31, 1914	J. P. Andrews	San Luis Obispo, San Luis Obispo Co.	12		
Dec. 8, 1914	J. P. Andrews	San Luis Obispo, San Luis Obispo Co.	4		
Jan. 2, 1915	Wm. Hagedorn	Menlo Park, San Mateo County	4		
Feb. 10, 1915	Wm. Hagedorn	Menlo Park, San Mateo County	1	------	5
Aug. 20, 1915	Herbert S. Rothchild	San Mateo, San Mateo County	2		
Dec. 9, 1914	H. M. Noble	San Jose, Santa Clara County	1		
Dec. 22, 1914	Geo. Dellwigg	San Jose, Santa Clara County	------	1	
Feb. 26, 1915	G. E. Rea	Gilroy, Santa Clara County	2		
Nov. 10, 1915	I. L. Koppel	San Jose, Santa Clara County	40		
Oct. 13, 1914	H. A. Hyde	Watsonville, Santa Cruz County	2		
Jan. 11, 1915	H. A. Hyde	Watsonville, Santa Cruz County	1		
April 17, 1916	A. J. Nakken	Santa Cruz, Santa Cruz County	2		
Oct. 18, 1915	F. G. Baum	Cassel, Shasta County	86		
Nov. 15, 1915	J. W. Long	Baird, Shasta County	12		
Aug. 29, 1915	Fish and Game Com.	Liberated in Siskiyou County	100		
Mar. 18, 1915	Gene M. Simpson	Corvallis, Oregon	12		
Dec. 6, 1915	S. Thurston Ballard	Louisville, Kentucky	------	12	
Dec. 20, 1915	Wm. J. Mackensen	Yardley, Pennsylvania	------	------	6
Jan. 28, 1916	Wm. J. Mackensen	Yardley, Pennsylvania	------	24	
Mar. 27, 1916	F. B. Stewart	Paradise Valley, Nevada	8		
		Totals	777 *27	73	16

*Eggs.

Statement of Lion Bounties Paid by Fish and Game Commission, from October, 1907, to June 30, 1916.

Counties	1907	1908	1909	1910	1911	1912	1913	1914	1915	January 1 to June 30, 1916	Total
Alameda	------	1	------	------	------	------	------	------	------	1	2
Alpine	------	------	------	------	------	------	------	------	1	------	1
Amador	------	3	------	1	2	2	------	------	------	------	8
Butte	2	11	5	2	4	3	2	1	------	------	30
Calaveras	------	1	4	1	------	1	------	1	3	------	11
Colusa	------	3	------	3	3	1	1	2	1	------	14
Del Norte	------	10	12	4	11	11	23	4	2	3	80
Eldorado	2	7	2	1	8	9	6	1	------	1	37
Fresno	------	1	3	1	------	4	------	1	1	------	11
Glenn	------	13	6	6	1	4	5	1	------	------	36
Humboldt	10	113	67	71	42	50	41	46	26	27	493
Imperial	------	------	------	------	------	------	------	------	1	------	1
Inyo	------	------	------	------	------	1	------	1	3	1	6
Kern	------	8	10	12	5	9	10	5	15	7	81
Lake	2	14	11	13	9	10	7	5	8	1	80
Lassen	------	------	1	------	2	1	2	------	------	------	6
Los Angeles	------	7	1	2	2	------	2	5	5	------	24
Madera	------	3	5	1	------	1	1	9	10	------	30
Mariposa	2	4	3	6	2	1	4	9	2	13	46
Mendocino	5	44	18	11	16	17	24	15	7	7	164
Merced	------	------	------	1	------	------	------	------	------	------	1
Modoc	------	------	1	1	1	------	------	------	------	------	3
Monterey	------	14	11	7	1	3	9	3	8	4	60
Mono	------	------	------	------	------	------	------	2	------	5	7
Napa	------	------	------	1	------	2	------	------	------	------	3
Nevada	------	1	1	1	------	------	------	------	------	2	5
Orange	------	------	1	1	1	------	1	------	------	------	4
Placer	------	5	4	1	2	7	3	3	1	3	29
Plumas	------	2	------	3	------	1	2	------	------	------	8
Riverside	------	2	5	------	------	4	2	------	------	1	14
San Benito	------	1	2	1	2	11	3	2	2	3	27
San Bernardino	------	5	2	1	2	------	2	1	1	------	14
San Diego	------	3	5	5	8	3	1	2	1	1	29
San Joaquin	------	------	------	------	------	------	------	------	2	------	2
San Luis Obispo	------	11	5	9	4	4	5	7	10	1	56
San Mateo	------	------	------	1	------	------	------	------	------	------	1
Santa Barbara	------	7	24	7	3	5	11	4	4	1	66
Santa Clara	------	------	4	------	------	1	1	1	1	2	10
Santa Cruz	------	------	------	1	------	------	------	------	------	------	1
Shasta	1	25	32	31	29	28	22	9	7	7	191
Sierra	------	1	------	------	------	3	2	------	------	------	6
Siskiyou	1	31	35	45	25	25	22	31	9	5	229
Sonoma	------	------	2	4	1	4	1	2	------	------	14
Stanislaus	------	------	2	------	1	------	------	------	1	------	4
Sutter	------	------	------	------	------	1	------	------	------	------	1
Tehama	3	31	19	25	10	22	27	5	4	------	146
Trinity	9	86	34	32	22	15	14	13	4	2	231
Tulare	------	6	8	11	4	5	3	10	8	5	60
Tuolumne	------	6	10	5	2	4	1	2	7	8	45
Ventura	------	1	6	4	6	2	------	1	7	------	27
Yuba	------	1	------	------	2	------	------	------	------	------	3
Totals	37	482	361	333	233	275	260	204	162	111	2,458

Total bounty paid, at $20 per scalp $49,160

Seizures of Fish, Game, and Illegally Used Fishing Apparatus, July 1, 1914, to June 30, 1916.

Ducks	6,695	
Rabbits, cottontail, hare	468	
Deer meat	3,802	pounds
Deer hides and horns	83	
Doves	122	
Quail	432	
Nongame birds	558	
Geese	1,265	
Shore birds	120	
Tree squirrels	9	
Antelope	55	pounds
Traps	3	
Miscellaneous game	60	
Sea otter skin	1	
Illegally used fishing apparatus, nets, lines, etc.*	337	
Trout	5,293	pounds
Striped bass	3,900	pounds
Salmon	4,195	pounds
Sturgeon	195	pounds
Black bass	271	pounds
Crabs	4,546	
Crawfish or lobsters	386	
Crawfish traps	8	
Clams	2,291	
Abalones	1,576	
Fish traps	3	
Shrimp and shrimp shells	5,011	pounds
Miscellaneous fish	2,231	pounds

Illegally used fishing apparatus, after condemnation in superior courts, is destroyed or sold by the board in accordance with law. All wholesome fish and game is donated to public and charitable institutions, from whom many grateful letters of acknowledgment have been received.

During the period from July 1, 1914, to June 30, 1916, there were 512 searches of markets, restaurants, private individuals, conveyances, etc., for illegal fish and game, made by deputies.

*337 nets, lines, etc., represent about 12,668 fathoms or 76,008 feet.

Summary of Prosecutions for Violations of State Game Laws, July 1, 1914, to June 30, 1916.

Offense	Number of arrests	Convicted	Acquitted and dismissed	Pending	Sentence suspended and probation	Number of days imprisonment	Fines imposed	Fines collected
Violations hunting license law	424	384	34	6	19	140	$6,335 00	$5,897 50
Deer—killing, pursuing, possession, close season; excess bag limit	150	112	30	8	3	513	3,355 00	3,072 00
Female deer and fawns—killing and possession	60	41	17	2	3	168	2,725 00	1,782 00
Spiked bucks—killing and possession	17	15	2		1	200	650 00	450 00
Deer hides—female; evidence of sex removed; buying or selling (hides and meat); not exhibiting on request of officer (hides and horns)	27	23	3	1	1	180	814 00	749 00
Ducks—killing and possession, close season	30	22	8		3	68	595 00	452 00
Ducks—excess bag limit	44	27	16	1	7		615 00	610 00
Ducks—using a trained animal for taking; night shooting; shooting from power boat in motion	59	43	12	4	13		885 00	755 00
Quail—killing and possession, close season	83	78	5		1	45	2,115 00	1,920 00
Quail—excess bag limit; buying and selling	7	6	1		1		130 00	130 00
Doves—killing and possession, close season; excess bag limit	27	27			2	6	620 00	589 00
Snipe, curlew, rail, plover and other shore birds—killing, possession, close season: excess bag limit	33	33			1		800 00	775 00
Pheasants, swans; killing	10	9	1				240 00	240 00
Grouse, sage hen; killing and possession, close season; excess bag limit	12	12					300 00	275 00
Wild pigeons—killing and possession, close season	4	3	1		1	3	50 00	47 00
Antelope—killing	1		1					
Nongame birds—killing and possession	127	115	11	1	12	12½	1,504 50	1,380 50
Illegal trapping and possession of birds, without permit	6	6			1		110 00	110 00
Illegal shipping of game—not properly marked; concealed package	3		3					
Cottontail and bush rabbits—killing and possession, close season; excess bag limit	63	59	4		13	25	1,035 00	910 00
Tree squirrels—killing and possession, close season	16	10	6		1		250 00	225 00
Wild geese—killing and possession, close season	1	1					25 00	25 00
Sea otter in possession	1		1					
Total game cases	1,205	1,026	156	23	82	1,360½	$23,101 50	$20,394 00

Summary of Prosecutions for Violations of State Fish Laws, July 1, 1914, to June 30, 1916.

Offense	Number of arrests	Convicted	Acquitted and dismissed	Pending	Sentence suspended and probation	Number of days imprisonment	Fines imposed	Fines collected
Fishing (market) without a license	140	124	16		31	95	$1,480 00	$1,015 00
Fishing (angling) without a license	141	131	10		11	10	2,830 00	2,512 00
Wholesale dealing in fish without a license; not keeping a register of fish purchased	14	12	2		1		215 00	195 00
Illegal fishing apparatus (nets, lines, spears, etc.)	174	105	61	8	34	805	9,135 00	4,264 00
Salmon, catching or possession, close season; underweight for sale	7	7			4		370 00	70 00
Saturday and Sunday fishing with net for salmon, shad, or striped bass	8	8			1	180	335 00	35 00
Striped bass, close season; underweight; exporting	35	24	6	5	4	45	435 00	390 00
Black bass, close season; excess bag limit; undersized	9	5	4		2	250	120 00	20 00
Trout, close season, excess bag limit	100	93	5	2	7	10	1,929 00	1,559 00
Catfish, undersized, buying or selling	12	6	5	1	1	2	170 00	168 00
Sturgeon, undersized	4	4					80 00	80 00
Salt water perch, buying or selling	6	3	3				40 00	40 00
Taking fish within fifty feet of a fishway	1		1					
Using explosives to take fish	6	4	2			250	950 00	250 00
Polluting waters—oil, sawdust, etc.	6		4	2				
Failure to screen ditches when ordered	2	1	1				35 00	35 00
Young of fish, taking or possession	14	13	1		5		245 00	195 00
Taking shellfish in Monterey Fish Reservation	2	2			1		50 00	25 00
Crabs, close season; undersized; female	70	57	13		28	50	510 00	485 00
Clams, excess bag limit; undersized	35	35			4		400 00	340 00
Abalones, close season; undersized; other than for food purposes	61	55	3	3	7	20	1,105 00	875 00
Crawfish, close season; undersized and oversized	19	18	1			26	475 00	379 00
California dried shrimp and shells	16	14	2		7		140 00	140 00
Total fish cases	882	721	140	21	148	1,743	$21,049 00	$13,022 00
Total fish and game cases	2,087	1,747	296	44	230	3,108½	$44,150 50	$33,416 00

Recapitulation.

Arrests—			
Fish cases		882	
Game cases		1,205	
Total			2,087
Convictions—			
Fish cases	721		
Game cases	1,026		
		1,747	
Acquittals and dismissals—			
Fish cases	140		
Game cases	156		
		296	
Pending cases—			
Fish cases	21		
Game cases	23		
		44	
Total			2,087
Fines imposed—			
Fish cases		$21,049 00	
Game cases		23,101 50	
Total			$44,150 50
Fines collected—			
Fish cases		$13,022 00	
Game cases		20,394 00	
Total			$33,416 00
Number of days imprisonment—			
Fish cases		1,748	
Game cases		1,360½	
Total			3,108½

Total Arrests for a Period of Fourteen Years.

1902–1904	550
1904–1906	774
1906–1908	1,192
1908–1910	1,771
1910–1912	2,063
1912–1914	1,993
1914–1916	2,087
Total	10,430

Hunting and Angling License Sales.

	Angling January 1 to December 31		Hunting July 1 to June 30	
	1914	1915	1914-15	1915-16
Alameda	$2,895 00	$2,856 00	$8,183 00	$7,509 00
Alpine	198 00	158 00	60 00	56 00
Amador	520 00	690 00	1,647 00	1,569 00
Butte	2,219 00	2,026 00	2,828 00	2,462 00
Calaveras	748 00	906 00	1,559 00	1,450 00
Colusa	461 00	392 00	1,588 00	1,553 00
Contra Costa	616 00	524 00	2,257 00	2,117 00
Del Norte	72 00	187 00	323 00	506 00
Eldorado	1,051 00	1,218 00	1,488 00	1,434 00
Fresno	3,053 00	3,556 00	6,402 00	6,774 00
Glenn	294 00	237 00	1,017 00	1,016 00
Humboldt	3,232 00	3,086 00	3,907 00	3,517 00
Imperial	22 00	15 00	598 00	539 00
Inyo	1,576 00	1,553 00	1,154 00	1,189 00
Kern	1,270 00	1,262 00	5,251 00	5,068 00
Kings	459 00	715 00	1,335 00	1,549 00
Lake	342 00	344 00	1,316 00	1,155 00
Lassen	1,152 00	1,272 00	1,326 00	1,274 00
Los Angeles	10,318 00	11,259 00	22,212 00	19,489 00
Madera	496 00	501 00	1,019 00	*205 00
Marin	387 00	314 00	1,111 00	------------
Mariposa	111 00	73 00	269 00	264 00
Mendocino	2,098 00	1,803 00	3,451 00	*2,400 00
Merced	496 00	488 00	1,992 00	1,953 00
Modoc	476 00	574 00	943 00	1,038 00
Mono	413 00	402 00	225 00	221 00
Monterey	656 00	739 00	1,742 00	1,784 00
Napa	1,061 00	1,255 00	2,283 00	2,060 00
Nevada	1,442 00	1,528 00	1,694 00	1,535 00
Orange	1,007 00	970 00	2,879 00	2,692 00
Placer	1,571 00	1,568 00	2,055 00	2,435 00
Plumas	1,463 00	1,605 00	862 00	941 00
Riverside	665 00	944 00	3,223 00	3,158 00
Sacramento	2,616 00	2,199 00	5,546 00	3,075 00
San Benito	165 00	214 00	1,085 00	1,088 00
San Bernardino	2,166 00	3,196 00	3,820 00	3,177 00
San Diego	1,185 00	887 00	5,688 00	5,359 00
San Joaquin	1,758 00	1,927 00	4,240 00	3,969 00
San Luis Obispo	678 00	904 00	1,365 00	1,439 00
San Mateo	640 00	683 00	1,813 00	1,552 00
Santa Barbara	1,740 00	1,964 00	2,441 00	2,419 00
Santa Clara	2,460 00	3,339 00	4,747 00	4,807 00
Santa Cruz	2,052 00	2,004 00	2,541 00	1,690 00
Shasta	1,590 00	1,448 00	2,167 00	1,995 00
Sierra	523 00	478 00	331 00	306 00
Siskiyou	2,722 00	2,990 00	3,749 00	3,576 00
Solano	646 00	849 00	2,385 00	2,245 00
Sonoma	2,583 00	2,825 00	5,923 00	5,713 00
Stanislaus	1,140 00	1,273 00	1,807 00	2,195 00
Sutter	129 00	131 00	777 00	738 00
Tehama	581 00	589 00	1,397 00	1,335 00
Trinity	442 00	368 00	924 00	913 00
Tulare	2,050 00	2,468 00	3,378 00	3,862 00
Tuolumne	920 00	1,024 00	1,187 00	1,275 00
Ventura	1,373 00	1,547 00	1,972 00	2,184 00
Yolo	385 00	394 00	2,085 00	2,036 00
Yuba	448 00	437 00	1,283 00	1,128 00
San Francisco office	8,736 00	8,561 00	13,557 00	15,567 00
Los Angeles office	959 00	819 00	575 00	1,021 00
Sacramento office	291 00	537 00	580 00	2,443 00
Fresno office	599 00	547 00	742 00	911 00
Totals	$84,417 00	$89,620 00	$166,307 00	$158,930 00

*Account not closed.

FINANCIAL STATEMENT, FISCAL YEARS 1914-1915 and 1915-1916.

REVENUES AND DISBURSEMENTS.

Receipts for Fiscal Year 1914-1915.

June 30, 1914—Balance in state treasury		$9,885 70
Receipts.		
Sale of hunting licenses, 1913-1914	$6,056 00	
Sale of hunting licenses, 1914-1915	153,073 00	
		159,129 00
Sale of anglers' licenses, 1914	$71,521 00	
Sale of anglers' licenses, 1915	8,209 00	
		79,730 00
Sale of wholesale fish and game dealers' licenses, 1913-1914	$30 00	
Sale of wholesale fish and game dealers' licenses, 1914-1915	1,420 00	
		1,450 00
Sale of market fishing licenses, 1914-1915	$39,210 00	
Sale of market fishing licenses, 1915-1916	12,070 00	
		51,280 00
Sale of trout farm licenses		10 00
Sale of game farm products		415 03
Received from importers of crawfish for inspecting		992 97
Sundry sales, refunds, rebates, etc.		253 28
Fines paid into state treasury for violations of fish, game and license laws		15,937 50
Total		$319,083 48
Less exchange and express charges paid state treasurer on remittances made by county clerks and justices of the peace		60 92
Total		$319,022 56

Receipts for Fiscal Year 1915-1916.

Sale of hunting licenses, 1914-1915	$13,517 00	
Sale of hunting licenses, 1915-1916	150,346 00	
		$163,863 00
Sale of anglers' licenses, 1914	$108 00	
Sale of anglers' licenses, 1915	81,474 00	
Sale of anglers' licenses, 1916	16,682 00	
		98,264 00
Sale of wholesale fish and game dealers' licenses, 1914-1915	$90 00	
Sale of wholesale fish and game dealers' licenses, 1915-1916	1,535 00	
		1,625 00
Sale of market fishing licenses, 1915-1916	$26,240 00	
Sale of market fishing licenses, 1916-1917	9,820 00	
		36,060 00
Sale of trout farm licenses		20 00
Sale of game farm products		182 50
Received from importers of crawfish for inspecting same		1,100 00
Received from importers of abalone for inspecting same		1,010 00
Sundry sales, refunds, rebates, etc.		199 09
Fines paid into state treasury for violations of fish, game and license laws		18,187 00
Total		$320,510 59
Less exchange and express charges paid state treasurer on remittances made by county clerks and justices of the peace		48 20
Total		$320,462 39

Recapitulation.

Receipts for fiscal year, 1914-1915	$319,022 56	
Receipts for fiscal year, 1915-1916	320,462 39	
		$639,484 95
Disbursements, fiscal year 1914-1915	271,996 10	
Disbursements, fiscal year 1915-1916	320,808 19	
		592,804 29
July 1, 1916—Balance in state treasury		$46,680 63

Disbursements for Fiscal Year 1914-1915.

GENERAL ADMINISTRATION.

Commissioners' traveling and other expenses	$735 03	
Salaries of administrative assistants	12,081 50	
Traveling expenses of administrative assistants	832 24	
Rentals, office and other supplies	3,991 71	
		$17,640 48

GENERAL FISH AND GAME PATROL.

San Francisco Division.

Salaries of deputies and employees	$33,756 80	
Traveling expenses of deputies and employees	13,540 02	
Rentals, office and other supplies	2,200 11	
		49,496 93

Sacramento Division.

Salaries of deputies and employees	$29,355 31	
Traveling expenses of deputies and employees	14,196 77	
Rentals, office and other supplies	1,564 51	
		45,116 59

Los Angeles Division.

Salaries of deputies and employees	$12,870 67	
Traveling expenses of deputies and employees	3,954 94	
Rentals, office and other supplies	1,792 78	
		18,618 39

Fresno Division.

Salaries of deputies and employees	$12,843 84	
Traveling expenses of deputies and employees	6,439 12	
Rentals, office and other supplies	1,077 89	
		20,360 85

Miscellaneous Expenditures.

Prosecutions and allowances		4,398 12
General printing		2,058 13
Subtotal, general administration and patrol		$157,689 49
Cost general administration and game patrol (60 per cent)		$94,613 69
Cost general administration and fish patrol (40 per cent)		63,075 80
		$157,689 49

Fishery Expenditures.

Administration.

Salaries of superintendent of hatcheries and assistants	$3,967 82	
Traveling expenses of superintendent of hatcheries and assistants	1,542 99	
Office and other supplies	620 64	
		6,131 45

Fishery Research and Publicity.

Salaries	$3,610 30	
Traveling expenses	1,285 22	
Supplies and general expenses	1,366 95	
		6,262 47

Screen and Fishway Surveys.

Salaries	$2,620 34	
Traveling expenses	1,422 70	
Supplies and general expenses	26 51	
		4,069 55

Fish Transplanting (Pack Train, Messengers, etc.).

Salaries	$1,361 08	
Traveling expenses	2,717 22	
Supplies and general expenses	159 69	
		4,237 99

Fish Distribution Cars.

Salaries	$2,001 89	
Traveling expenses and mess allowance	1,158 40	
General expenses and supplies	1,118 67	
Repairs	959 21	
		5,238 17

Fish Patrol (Launches, etc.),

Salaries	$2,717 84	
Traveling expenses and mess allowance	713 31	
Repairs	552 43	
Supplies (oil, etc.) and general expenses	1,032 89	
		5,016 47

Sisson Hatchery.

Salaries	$17,996 18	
Traveling expenses	27 35	
Construction and repairs	2,788 74	
Fish food and ice for meat	4,628 97	
General expenses and supplies	1,084 07	
		26,525 31

Sisson Hatchery Auxiliary Stations.

Salaries	$2,177 37	
Traveling expenses	262 33	
Construction and repairs	425 68	
General expenses and supplies	186 88	
		3,052 26

Tahoe Hatcheries.

Salaries	$1,933 67	
Traveling expenses	167 70	
Construction and repairs	34 36	
General expenses and supplies	370 83	
		2,506 56

Price Creek Hatchery.

Salaries	$1,764 17	
Traveling expenses	154 55	
Construction and repairs	58 54	
General expenses and supplies	890 78	
		2,868 04

Ukiah and Snow Mountain Hatchery.

Salaries	$2,259 87	
Traveling expenses	167 89	
Construction and repairs	581 99	
General expenses and supplies	426 20	
		3,435 95

Wawona Hatchery.

Salaries	$120 00	
Traveling expenses	50 35	
Construction and repairs	---------	
General expenses and supplies	---------	
		170 35

Scott Creek and Brookdale Hatchery.

Salaries	$1,139 50	
Traveling expenses	7 50	
Construction and repairs	14 88	
General expenses and supplies	415 95	
		1,577 83

Bear Valley Hatchery.

Salaries	$602 66	
Traveling expenses	199 60	
Construction and repairs	---------	
General expenses and supplies	29 56	
		831 82

Miscellaneous Expenditures.

Printing and lithographing fishing licenses	630 26
Anglers' license commissions and refunds	8,573 65
Market fishing license commissions	692 25
Crawfish and abalone inspection	904 03
Subtotal, fishery expenditures	$82,724 41